

## TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
EXECUTIVE SUMMARY .....	1
1.0 Introduction .....	2
2.0 Site Description and Characteristics.....	3
2.1 Regional Geology .....	3
2.2 Hydrogeology .....	3
2.3 Geology .....	3
2.4 Location and Site Description .....	4
2.5 Description of Operations.....	4
3.0 Field Program .....	6
3.1 Geophysical Survey .....	6
3.2 Soil Assessment.....	6
3.2.1 Direct-Push Soil Borings.....	6
3.2.2 Pothole Activities .....	7
3.2.3 Monitoring Well Installation .....	7
3.3 Groundwater Assessment .....	7
3.3.1 Direct-Push Soil Borings.....	8
3.3.2 Monitoring Well Installation .....	8
3.4 Asbestos and Lead Based Paint Survey.....	8
4.0 Laboratory Testing Program.....	9
4.1 Soil and Groundwater Analyses .....	9
5.0 Results .....	10
5.1 Parcel 1 .....	10
5.1.1 Glass Beach No. 1 .....	10
5.1.2 Glass Beach No. 2 .....	11
5.1.3 Glass Beach No. 3 .....	11
5.1.4 Pump House .....	12
5.1.5 Discussion .....	13
5.1.6 Recommendations .....	13
5.2 Parcel 2 .....	13
5.2.1 Resaw No. 5 .....	14
5.2.2 Glue Lam .....	15
5.2.3 Breezeway .....	15
5.2.4 Dry Shed No. 2.....	16
5.2.5 Helicopter Landing Pad.....	16
5.2.6 Discussion .....	17

## Table of Contents (continued)

5.2.7	Recommendations .....	17
5.3	Parcel 3 .....	18
5.3.1	Transformers .....	18
5.3.2	Scrap Yard .....	19
5.3.3	Railroad Spurs .....	19
5.3.4	Planer No. 50 .....	19
5.3.5	Former Planer No. 1 .....	19
5.3.6	Dry Sheds No. 4 and 5 .....	20
5.3.7	Former Mobile Equipment Shop .....	21
5.3.8	Construction Engineering .....	22
5.3.9	Kilns Area .....	22
5.3.10	Compressor House .....	22
5.3.11	Machine Shop/Plumbing/Plant Supply .....	23
5.3.12	Covered Shed .....	24
5.3.13	Discussion .....	24
5.3.14	Recommendations .....	25
5.4	Parcel 4 .....	26
5.4.1	Transformers .....	26
5.4.2	Ponds .....	26
5.4.3	Former Bunker Fuel ASTs .....	27
5.4.4	Power House Fuel Storage .....	28
5.4.5	Power House .....	28
5.4.6	Cooling Towers .....	29
5.4.7	Press Building .....	29
5.4.8	Oil Storage Shed .....	29
5.4.9	Discussion .....	30
5.4.10	Recommendations .....	30
5.5	Parcel 5 .....	31
5.5.1	Sawmill No. 1 .....	31
5.5.2	Log Pond .....	32
5.5.3	Area West of the Mobile Equipment Shop .....	33
5.5.4	Transformer Pad .....	34
5.5.6	Washdown Building .....	35
5.5.7	Fuel Storage and Dispenser Building .....	36

## Table of Contents (continued)

5.5.8	Tire Shop .....	36
5.5.9	Gas Station Area.....	37
5.5.10	Old Shingle Mill Area .....	37
5.5.11	Former Boarding House Area .....	38
5.5.12	Log Pond Fill Area .....	38
5.5.13	Discussion .....	40
5.5.14	Recommendations .....	41
5.6	Parcel 6 .....	42
5.6.1	Transformers .....	42
5.6.2	Hazardous Waste Storage Area .....	42
5.6.3	Planer Mill No. 2 .....	43
5.6.4	Shipping Office .....	43
5.6.5	Former AST .....	44
5.6.6	Fill Area.....	44
5.6.7	Former Cooling Towers .....	45
5.6.8	Discussion .....	45
5.6.9	Recommendations .....	45
5.7	Parcel 7 .....	46
5.7.1	Transformers .....	46
5.7.2	Hazardous Materials Storage Area.....	46
5.7.3	Sawmill No. 2.....	46
5.7.4	TP Burner & Fuel ASTs.....	47
5.7.5	South Ponds.....	48
5.7.6	Sediment Drying Area.....	48
5.7.7	Existing Monitoring Wells .....	49
5.7.8	Stockpile.....	49
5.7.9	Discussion .....	49
5.7.9	Recommendations .....	50
5.8	Parcel 8 .....	50
5.8.1	Airstrip Fueling Area.....	50
5.8.2	Disturbance Along Coastal Area.....	51
5.8.3	Clinker Piles .....	51
5.8.4	Sheep Barn .....	52
5.8.5	Discussion .....	52

## Table of Contents (continued)

5.8.6	Recommendations .....	53
5.9	Parcel 9 .....	53
5.9.1	Overhead Transformer .....	53
5.9.2	Nursery Area .....	53
5.9.3	Scrap Metal Area .....	54
5.9.4	Discussion .....	55
5.9.5	Recommendations .....	55
5.10	Parcel 10 .....	56
5.10.1	Fill Material Area .....	56
5.10.2	Clinker and Ash/Scrap Pile .....	57
5.10.3	Discussion .....	57
5.10.4	Recommendations .....	58
6.0	Recommendations .....	59
7.0	References .....	62

## **Table of Contents (continued)**

### **TABLES**

1	Phase I and Phase II Investigation Summary
2	Soil Analytical Results – Petroleum Hydrocarbons
3	Soil Analytical Results – Volatile Organic Compounds (VOCs)
4	Soil Analytical Results – Semi-Volatile Organic Compounds (SVOCs)
5	Soil Analytical Results – Metals
6	Soil Analytical Results – PCBs
7	Soil Analytical Results – Pesticides
8	Groundwater Analytical Results – Petroleum Hydrocarbons
9	Groundwater Analytical Results – Volatile Organic Compounds (VOCs)
10	Groundwater Analytical Results – Semi-Volatile Organic Compounds (SVOCs)
11	Groundwater Analytical Results – Metals
12	Summary of Groundwater Levels and Chemical Analysis

### **FIGURES**

1	Vicinity Map
2	Site Plan Showing Sampling Locations and Monitoring Wells
3	Parcel 1 – North Coastal Zone
4	Parcel 2 – Resaw Plant
5	Parcel 3 – Industrial
6	Parcel 3 Detail, Construction Engineering
7	Parcel 3 Detail, Machine Shop and Sheet Metal/Plumbing/Plant Supply
8	Parcel 4 – Power House
9	Parcel 5 – Sawmill No.1
10	Parcel 5 Detail, Mobile Equipment Shop/Washdown Building
11	Parcel 5 Detail, Fuel Storage and Dispenser Building
12	Parcel 5 Detail, Former Sawmill No. 1
13	Parcel 6 – Planer
14	Parcel 7 – Sawmill No. 2
15	Parcel 8 – Log Storage
16	Parcel 9 – Nursery
17	Parcel 10 – South Coastal Zone
18	Groundwater Contour Map, January 2004

## **Table of Contents (continued)**

### **APPENDICES**

- A Geophysical Investigation Report
- B Boring/Monitoring Well Permits
- C Boring Logs and Well Completion Diagrams
- D Analytical Data and Chain of Custody Documentation
- E Survey Data
- F Report of Findings, Preliminary Investigation Demolition Support Services, TRC, 1998  
(w/o Attachments)

## EXECUTIVE SUMMARY

The subject of this Phase II Assessment (Phase II) is Georgia Pacific Corporation, Fort Bragg Operations located at 90 West Redwood Avenue in Fort Bragg, California (Site). The Site was delineated into ten parcels based on operational use and history.

Preliminary Phase II assessment activities have included subsurface geophysical surveys, asbestos and lead based paint surveys of 38 buildings and structures, over 150 soil borings (including soil and groundwater samples), and nearly 40 potholes. Soil and grab groundwater samples were analyzed for some or all of the following, depending on potential impacts: total petroleum hydrocarbons (as diesel, gasoline, and motor oil), CAM-17 metals, volatile and semi-volatile organic compounds (VOCs and SVOCs), polychlorinated biphenyls (PCBs), and pesticides and herbicides.

The initial results indicated that metals, VOCs, SVOCs, and PCBs were nearly at or below the detection level and do not present a concern at the Site. Based on initial soil and grab groundwater analytical results a supplemental assessment was conducted to further evaluate the impacts.

Supplemental assessment activities included 8 additional soil borings, over 30 additional potholes, and installation of 30 groundwater monitoring wells (including additional soil and groundwater sampling) to further assess total petroleum hydrocarbons, in most parcels and, in limited areas, VOCs.

Elevated levels of hydrocarbons were present in grab groundwater samples from soil borings in select areas including the Former Mobile Equipment Shop, Machine Shop, and the Mobile Equipment Shop. Subsequently, results of the analysis of groundwater samples collected from monitoring wells in these same areas indicated low to nondetectable levels of hydrocarbons, with the exception of MW-3.2, located in northeast Parcel 3.

Affected media include (but are not limited to) hydrocarbon impacted soil at the Former Mobil Equipment Shop Area, Compressor House, Machine Shop, northeast of the Power House, Former Saw Mill No. 1, Mobile Equipment Shop, Log Pond fill areas, northwest corner of Planer No. 2, Shipping Office, west of the Saw Mill, and Fill Area (near the blowhole). Low levels of VOCs in soil were discovered at the Mobile Equipment Shop area.

## 1.0 INTRODUCTION

On behalf of Georgia Pacific (G-P), this report presents the results of the Phase II Assessment (Phase II) activities conducted at the Fort Bragg Operations located at 90 West Redwood Avenue in Fort Bragg, California (Site). Site operations included lumber production and power generation by burning residual bark and wood. The Site ceased operations in August 2002 and much of the equipment associated with the lumber production has since been removed.

In 2002, a Phase I Assessment was conducted by . The Phase I report was submitted to the Regional Water Quality Control Board in March 2004.

The purpose of the Phase II is to characterize site soils and groundwater in the areas of interest identified in the Phase I report and refine the understanding of the nature and extent of possible impacts to affected media. Preliminary Phase II activities were conducted in March and April 2003. Supplemental Phase II activities were conducted in December 2003 and January 2004.

An investigation summary of Phase I and Phase II is presented in Table 1. Tables 2 through 7 present soil analytical data and Tables 8 through 11 present groundwater analytical data. A summary of groundwater levels and analysis (associate with monitoring wells) is presented in Table 12. The vicinity map is shown in Figure 1 and a Site plan showing sampling location and monitoring wells is illustrated in Figure 2. Figures 3 through 17 illustrate assessment activities with respect to each parcel and areas of concern. A groundwater contour map (January 2004) is illustrated in Figure 18.



## **2.0 SITE DESCRIPTION AND CHARACTERISTICS**

### **2.1 Regional Geology**

Fort Bragg is located on the Pacific Coast within the Coast Range Geomorphic Province of Northern California. The bedrock of the region is part of the unnamed Cretaceous to Upper Jurassic marine sedimentary rocks, consisting of sandstone, shale, and conglomerate (Division of Mines and Geology, 1960).

Other geologic units present in Fort Bragg and the Site vicinity are surficial geologic units including deposits of beach and dune sands, alluvium, and marine terrace deposits. The most important of these for the project site is the marine terrace deposits of Pleistocene age which form much of the coastal bluff material overlying bedrock. The marine terrace deposits are massive, semi-consolidated clay, silt, sand and gravel, ranging from 1 to 140 feet in thickness.

### **2.2 Hydrogeology**

The regional hydrogeologic setting of the Mendocino Coast has been presented in the *Mendocino County Coastal Ground Water Study*, first published in June 1982 by the State Department of Water Resources. The project site is located in the western coastal area of Mendocino County. This area is divided into five subunits in the Coastal Groundwater Study: the Westport, Fort Bragg, Albion, Elk and Point Arena subunits, separated by the major rivers which discharge to the Pacific Ocean. The aerial extent of the Coastal Groundwater Study included all areas in which coastal terrace deposits had been mapped. The project site is located within the Fort Bragg subunit, which extends from Big River on the south to Tenmile River on the north.

Fresh ground water is primarily obtained from shallow wells in the semi-consolidated marine terrace deposits, or through the municipal or privately-owned water systems. These water systems divert surface flow and springs, or tap shallow alluvial aquifers. A combination of wells and surface water diversions is commonly necessary to insure adequate supply year-round.

Depth to water varies greatly over the site and has been encountered as shallow as 1 foot below grade (fbg) in the east area of Parcel 3 to over 25 fbg in the southwest area of Parcel 10. Based on the January 2004 groundwater monitoring data and topographic gradients, the groundwater flow direction at the Site appears to be primarily to the west-southwest. All discussions of groundwater flow directions are based on the January 2004 monitoring data only and will be refined as additional data are collected.

### **2.3 Geology**

The Site geology is primarily artificial fill material consisting of sands with gravel, gravels with sand, and gravels to a depth of approximately 0-20 feet across the Site. Underlying the fill material are the Pleistocene age marine terrace deposits which consist of silty sands, sand, gravel with sand, and gravel. The marine terrace deposits vary in thickness across the Site from 12 to greater than 70 feet. Underlying the marine terrace deposits are sandstone and conglomerate bedrock.

## 2.4 Location and Site Description

The G-P Ft. Bragg Facility is located along the coastline in the city of Fort Bragg, Mendocino County, California. The Site is located west of Highway One and is bounded to the south by Noyo Bay, open coastline to the north, the city of Fort Bragg to the east, and the Pacific Ocean to the west.

The Site is located on approximately 420 acres. For the purposes of this study, the Site has been divided into ten parcels by TRC (Figure 2). The parcels have been assigned the following designations and have the corresponding areas:

Parcel No.	Name	Approximate Area (acres)
1	North Coast Zone	60
2	Resaw Plant	10
3	Industrial Parcel	65
4	Power Plant Parcel	10
5	Sawmill No. 1	20
6	Planer Parcel	25
7	Sawmill No. 2	35
8	Log Storage Parcel	125
9	Nursery Parcel	15
10	South Coastal Zone	55

Figure 2 presents a map of the Georgia Pacific facility with the parcel designations. Based on site reconnaissance activities each parcel was further divided into identified areas of interest. Each Parcel and the associated identified areas of interest are discussed in further detail in their respective sections of the assessment report.

## 2.5 Description of Operations

A description of site operations is provided in detail in the Phase I report. In general, according to historical records, the sawmill at Fort Bragg began operations in 1885. Georgia Pacific acquired the facility and began operations in 1973. On August 8, 2002, lumber production operations ceased at the facility. Prior to the plant closure, logs were received by truck, unloaded, and stored in the log storage areas. Logs were then removed from inventory, debarked, and milled. Milled lumber was then either shipped green, kiln dried, or air dried on site. Finished lumber was transported by rail or flatbed trailers. Bark and wood refuse were transported by truck, conveyer, or pneumatic system to the power plant where they were burned to generate steam for electricity.

According to documents reviewed during agency file reviews, the areas designated Parcel 1 and 2 were owned by Union Lumber Company. Title to the property was transferred from Union Lumber Company to Boise Cascade Lumber Company in 1969, and then to Georgia Pacific Corporation in 1973. The property north of Parcel 1 was purchased by the William J. Blinn Trust in 1991.

Historically, the facility operations were conducted in the sawmills (No. 1 and No. 2), planer buildings, a fence plant, a power plant, lumber storage areas, and various maintenance facilities. Based on review of historical Sanborn maps, early facility operations occurred mainly on Parcels 4 and 5 (TRC, 2004). Over the course of the 117 years of operations the facility has expanded to approximately 420 acres. Parcel 4 contains the power plant which provided power. Parcels 1 and 8 were primarily utilized for finished lumber and raw log storage. Parcel 8 also contains an airstrip which has been out of operation since the late 1980s. Parcel 9 and 10 were largely unused for sawmill operations until recently when an operating nursery was established on Parcel 9. Up until the mill's recent closure, mill operations occurred on Parcels 6 and 7, which contain the planer building and sawmill No. 2. Parcel 5 contains fueling and maintenance facilities for facility equipment. Until 1998 Parcel 5 also contained Sawmill No. 1. This sawmill ceased operations in 1998 and was demolished in 1999 and 2000. Parcel 2 historically contained a wood prefabrication plant utilized for railroad flatcars and fence posts. Parcel 3 contains the sheet metal shop, planer building, kilns, priming and testing building, sorter building, and mobile equipment yard.

### **3.0 FIELD PROGRAM**

Phase II site activities began in March 2003 with a subsurface geophysical survey. Soil borings and potholes were completed in March and April 2003. Based on results of activities conducted in March and April, supplemental assessment activities were completed in December 2003 and January 2004 which included additional soil borings, potholes, and monitoring well installation. In addition, an asbestos and lead based paint survey was completed in January 2003. This section presents a detailed description of these activities.

#### **3.1 Geophysical Survey**

A subsurface geophysical survey was conducted at various areas of the Site with a total of approximately 30 acres. The survey was conducted over a period of eight days between March 10 through 21, 2003 by NorCal Geophysical Consultants, Inc. of Petaluma, California, under the supervision of a geologist from TRC. The purpose of the geophysical assessment was to determine the locations of suspected underground objects of interest from both past and present use, assess disturbed/fill areas, and to locate any buried utilities, which may have interfered with drilling activities. Suspected underground objects of interest included underground storage tanks (USTs), buried debris, railroad spurs, underground utilities, and other miscellaneous subsurface objects. The subsurface geophysical report is included in Appendix A. Findings of this report are referenced throughout Section 5.

#### **3.2 Soil Assessment**

Initial and supplemental soil assessment activities included over 150 direct-push soil borings, completion of nearly 70 potholes, and installation of 30 monitoring wells. It should be noted that in addition to these activities, over 60 surface soil samples were collected throughout the site as part of the soil assessment.

Soil samples were collected throughout the assessment and were labeled, preserved appropriately, and submitted for analysis to Curtis & Tompkins, Ltd., a state-certified laboratory in Berkeley, California. Soil boring and monitoring well permits are included in Appendix B. Boring logs, pothole lithology, and well completion diagrams are included in Appendix C. Laboratory reports and chain-of-custody documentation is included in Appendix D.

The locations of soil borings and potholes were surveyed by a state-licensed surveyor in accordance with the State Plane Coordinate System. The survey data is included in Appendix E.

##### **3.2.1 Direct-Push Soil Borings**

On March 12 through April 1, 2003, a truck-mounted direct-push rig equipped with 2-inch diameter core barrels was used to advance over 150 soil borings to depths ranging from 3 to over 17 fbg (Figure 2). Eight additional soil borings were completed on December 18 and 19, 2003 in parcels 4, 6, and 9.

Soil samples were collected using a 4-foot long continuous core barrel. Soil was continuously logged in accordance with the Unified Soil Classification System (USCS) and recorded on boring logs. At various intervals in the vadose zone, a 6-inch section of each continuous core sample was

collected for laboratory analysis and screened for hydrocarbon vapor concentrations using a portable photo ionization detector (PID). Once completed, the borings were properly sealed with neat cement grout to surface grade.

### 3.2.2 Pothole Activities

Between March 17 and 19, 2003, 38 potholes were advanced using a backhoe in parcels 3, 8 and 10 to depths ranging from 3 to 12 feet below grade. Subsequently, additional potholes were advanced in Parcels 5 and 8 to depths ranging from 3 to 8 feet below grade. The locations of the potholes were selected based on interviews with G-P personnel, aerial photograph reviews, geophysical assessment results, and observed field conditions. The lithology of the soil in the potholes was described in accordance with the Unified Soil Classification System (ASTM D-2488). Select soil samples were collected from the excavated soils at each pothole location.

Over 30 additional potholes were completed at various depths on December 18 and 19, 2003 and January 13, 2004 in Parcels 1, 3, 5, and 6 as a supplement to the initial Phase II work.

After surveying of sampling points was completed, the potholes were backfilled with the excavated soils.

### 3.2.3 Monitoring Well Installation

After reviewing the analytical results from the Preliminary Phase II Assessment and other historical assessments with the North Coast Regional Water Quality Control Board, 30 monitoring wells were strategically placed across the Site to better define our understanding of the nature and extent of impacted areas and site hydrogeology.

From December 1 through December 18, 2003, 30 monitoring wells were installed onsite. The monitoring wells were constructed with 4-inch diameter schedule 40 PVC casing with a 0.020-inch slot size for the screen interval. The screen-formation annulus was filled with No. 2/12 filter sand pack which extends a minimum of one foot above the top of the screen. At monitoring wells installed where the groundwater table was encountered less than 4 fbg, the filter pack extends a minimum of 6-inches above the top of the screen. A one- to two-foot thick bentonite seal was placed above the filter pack and the remaining annulus was filled with cement/bentonite slurry. The wells were completed with either a flush mounted traffic rated well box (with locking well cap) or a locking 3-foot metal riser. Final well completion was based on field conditions and the well location. Total well depths range from 12-35 fbg. Soil samples were collected at various depths, based on initial Phase II findings and field conditions.

## 3.3 **Groundwater Assessment**

This Assessment included grab groundwater samples from direct-push soil borings as well as the subsequent monitoring and sampling of the monitoring wells. Groundwater samples were labeled, preserved appropriately, and submitted to a state-certified laboratory for analysis. Boring logs and well completion diagrams are included in Appendix C. Laboratory reports and chain-of-custody documentation are included in Appendix D.

### 3.3.1 Direct-Push Soil Borings

After completing each soil boring to the target depth, a temporary well screen was installed to allow collection of grab groundwater samples. Once completed, the temporary screen was removed the borings were properly sealed with neat cement grout to surface grade.

Grab groundwater samples were not collected as some borings due to one of two field conditions: (1) groundwater was not present at the target depth of the soil boring, or (2) boring refusal occurred and groundwater was not present.

### 3.3.2 Monitoring Well Installation

Following installation, the monitoring wells were developed and groundwater samples were collected. Development occurred on December 17 through 19, 2003, and January 12 through 15, 2004. On January 27 through 30, 2004, the groundwater was monitored for various field parameters and sampled.

## 3.4 **Asbestos and Lead Based Paint Survey**

An asbestos and lead based paint survey was conducted from January 6 through 16, 2003 by Hygienetics Environmental Services, Inc. The inspection included 38 buildings/structures. A visual inspection was first conducted to identify accessible suspect asbestos containing material (ACM) and lead based paint. Suspect ACM and lead based paint samples were then collected and analyzed.

Results are documented in *Asbestos and Lead Based Paint Inspection Report* by Hygienetics Environmental Services, Inc. dated February 2003. They indicate several buildings and structures with asbestos and lead based paint impacts. The report has been presented to the City of Fort Bragg and the Regional Water Quality Control Board as part of other Site permitting activities.

## **4.0 LABORATORY TESTING PROGRAM**

Curtis and Tompkins, Ltd. (C&T) of Berkeley, California, a state-certified laboratory, performed the analysis of the soil and groundwater samples. Samples requiring analysis for pesticides and herbicides were sent to North Coast Laboratories of Arcata, California, a state-certified laboratory. Analytical reports and chain-of-custody documentation for soil and groundwater are included in Appendix D.

### **4.1 Soil and Groundwater Analyses**

Soil and groundwater samples were analyzed for some or all of the following constituents by the EPA Method indicated:

- CAM 17 Metals (EPA 6010/7400)
- Hexavalent chromium (EPA Method 7196)
- Total petroleum hydrocarbons as gasoline (TPH-G) (EPA Method 8015 Modified)
- Total petroleum hydrocarbons as diesel (TPH-D) (EPA Method 8015 Modified)
- Total petroleum hydrocarbons as motor oil (TPH-MO) (EPA Method 8015 Modified)
- Volatile organic compounds (VOCs) (EPA Method 8260)
- Semi-volatile organic compounds (SVOCs) (EPA Method 8270)
- Polychlorinated biphenyls (PCBs) (EPA Method 8082)
- Organochlorine Pesticides (EPA Method 8081)
- Site specific pesticides/herbicides (no EPA Method)

Laboratory analysis for each sample was determined prior to collection based on Phase I Assessment findings and the history of operations in the sample area.

It should be noted that selected soil and groundwater samples collected during the initial Phase II activities analyzed for TPH-D were analyzed both with and without silica gel cleanup (SGCU) method for comparison purposes. TRC was concerned that analysis for TPH-D without the silica gel preparation could be misleading, because the purpose of the preparation is to remove non-fuel hydrocarbons from the samples. Without the preparation, non-fuel hydrocarbons, including anthropogenic and naturally occurring organic compounds, may be detected and falsely quantified as diesel.

Initial Phase II results indicated significantly lower TPH-D concentrations in groundwater analyzed with SGCU as compared analyses without SGCU. Therefore groundwater samples collected during the supplemental Phase II activities analyzed with TPH-D utilized SGCU. TPH-D results in soil samples with and without SGCU were comparable. These findings indicate the presence of non-fuel hydrocarbons and/or naturally occurring organic compounds in groundwater.

## 5.0 RESULTS

### 5.1 Parcel 1

Based on the Phase I Assessment, four areas of interest have been identified in Parcel 1. They include: Glass Beach No. 1, Glass Beach No. 2, Glass Beach No. 3, and the pump house. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 1 for each of the areas of interest. A discussion of findings and recommendations are presented in Sections 5.1.5 and 5.1.6, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 3. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater sampling data are included in Tables 8 through 11. Groundwater data from the monitoring wells are included in Table 12.

#### 5.1.1 Glass Beach No. 1

##### *PHASE I RECOMMENDATIONS*

- The subsurface soils and groundwater above the high tide line, in the areas of Glass Beach No. 1 should be investigated for metals and TPH, based on the accepted Remedial Action Plan (SHN, 2002) for the adjacent glass beach area.
- Remove abandoned scrap metal on Glass Beach No. 1.

##### *PHASE II ACTIVITIES AND RESULTS*

Based on the above Phase I recommendations, five soil borings (P1-1 through P1-5) were completed for the purpose of assessing soils for constituents of concern and delineating possible buried debris in the Glass Beach No. 1 area. Nine soil samples and three groundwater samples were collected from the boring. Soil samples were collected from depths of 1 and 5 fbg and analyzed for TPH-G, TPH-D, metals, VOCs, SVOCs, and pesticides. Three soil samples were additionally analyzed for PCBs and pesticides. Grab groundwater samples were analyzed for TPH-D, TPH-G, metals, VOCs, and SVOCs.

Nine potholes (TP-1 through TP-9) were excavated, per the request of the RWQCB, for the purpose of delineating possible buried debris. TP-1 through TP-5 were located within the fenced G-P Lumber Storage Area. TP-6 through TP-9 were located west of the G-P fence line near the coastal bluffs. No soil samples were collected.

All potholes in the Glass Beach No. 1 area were completed to bedrock. Bedrock was encountered at approximately 3 to 5 fbg. No subsurface debris or fill material was encountered in the nine potholes.



### *SOIL*

Detectable concentrations of metals in the soil samples are consistent with background levels found in the greater region. Concentrations of TPH-G, VOCs, SVOCs, PCBs, and pesticides were not detected at or above the laboratory detection limit in soil samples collected from Glass Beach No. 1. TPH-D concentrations ranged from 1.4 (P1-3 at 1 fbg, P1-5 at 1 fbg) to 12 mg/kg (P2-4 at 1 fbg).

### *GROUNDWATER*

Detectable concentrations of metals in the grab groundwater samples are consistent with background levels found in the greater region. Concentrations of TPH-D, TPH-G, VOCs, and SVOCs were not detected, at or above laboratory detection limits, in grab groundwater samples collected from Glass Beach No. 1.

#### 5.1.2 Glass Beach No. 2

##### *PHASE I RECOMMENDATIONS*

- The subsurface soils and groundwater above the high tide line, in the areas of Glass Beach No. 2 should be investigated for metals and TPH, based on the accepted Remedial Action Plan (SHN, 2002).
- Remove abandoned scrap metal on Glass Beach No. 2.

##### *PHASE II ACTIVITIES AND RESULTS*

Based on the above Phase I recommendations, four borings (P1-6 through P1-9) were advanced for the purpose of assessing soils for constituents of concern and delineating possible buried debris in the Glass Beach No. 2 area. Eight soil samples were collected from the borings at depths of 1 and 5 fbg and analyzed for TPH-G, TPH-D, metals, VOCs, and SVOCs. Two soil samples were additionally analyzed for PCBs and pesticides. No groundwater samples were collected. No subsurface debris or fill material was observed during soil boring activities.

An additional pothole was requested by the RWQCB in order to investigate a raised bluff area overlooking Glass Beach No. 2. Upon further investigation with a backhoe, the raised bluff area was instead a large outcrop of thick vegetation. No debris was encountered.

### *SOIL*

Detectable concentrations of metals are consistent with background levels found in the greater region. Concentrations of TPH-G, VOCs, SVOCs, PCBs, and pesticides were not detected at or above the laboratory detection limit in soil samples collected from Glass Beach No. 2. TPH-D concentrations ranged from 2.7 (P1-9 at 5 fbg) to 73 mg/kg (P1-9 at 1 fbg).

#### 5.1.3 Glass Beach No. 3

##### *PHASE I RECOMMENDATIONS*

- The subsurface soils and groundwater above the high tide line, in the areas of Glass Beach No. 3 should be investigated for metals and TPH, based on the accepted Remedial Action Plan (SHN, 2002) for the off-site Glass Beach to the north.

- Remove abandoned scrap metal on Glass Beach No. 3.

#### *PHASE II ACTIVITIES AND RESULTS*

Based on the above Phase I recommendations, six potholes (P1-10 through P1-15) were excavated for the purpose of assessing soils for constituents of concern and delineating possible buried debris in the Glass Beach No. 3 area. Twelve soil samples were collected from the potholes at depths of 1 and 5 fbg and analyzed for TPH-G, TPH-D, metals, VOCs, and SVOCs. One soil sample was additionally analyzed for pesticides.

A geophysical survey was conducted on Glass Beach No. 3 covering an area approximately 180 ft. east/west by 120 ft. north/south.

Eight additional potholes (TP-10 through TP-17) were excavated for the purpose of investigating subsurface anomalies detected during geophysical survey activities and the observed debris protruding from the coastal bluffs at Glass Beach No. 3.

All potholes in the Glass Beach No. 3 area were completed to bedrock. Bedrock was encountered at approximately 3 to 5 fbg.

#### *GEOPHYSICAL SURVEY*

A geophysical survey was conducted to further determine the presence of, and delineate possible buried debris at Glass Beach No. 3. The survey was conducted over an approximately 180 ft. east/west by 120 ft. north/south area of Glass Beach No. 3. A terrain conductivity anomaly with relatively high soil conductivity was detected in the central western portion of the surveyed area. The anomaly represents an area with a significant change in subsurface material, which may be consistent with landfill activities. A magnetic anomaly was discovered toward the northwest corner of the survey area. The anomaly is in an area where metal debris can be observed protruding from the coastal bluffs, and therefore, probably represents additional buried metal debris. Four additional metal detector anomalies were identified in the survey area and are consistent with shallowly buried metal debris.

Each of the six reported anomalies was investigated with a backhoe during potholing activities. Buried debris was encountered at some pothole locations, at approximately 1-2 fbg, but was limited to the debris visible along the coastal bluffs.

#### *SOIL*

Detectable concentrations of metals are consistent with background levels found in the greater region. Concentrations of TPH-G, VOCs, SVOCs, and pesticides were not detected at or above the laboratory detection limit in soil samples collected from Glass Beach No. 3. TPH-D concentrations ranged from 1.4 (P1-13 at 1 fbg) to 11 mg/kg (P1-11 at 1 fbg).

#### 5.1.4 Pump House

##### *PHASE I RECOMMENDATION*

- Due to the age of the Pump House, the surrounding area should be investigated for TPH as diesel.

## *PHASE II ACTIVITIES AND RESULTS*

Based on the above Phase I recommendations, one soil boring (P1-16) was advanced in the pump house area. Two soil samples and one groundwater sample were collected and analyzed for TPH-D.

### *SOIL*

Concentrations of TPH-D were detected in soil samples P1-16 at 1 fbg (11 mg/kg) and P1-16 at 5 fbg (12 mg/kg), collected near the pump house.

### *GROUNDWATER*

TPH-D was detected in the grab groundwater samples P1-16 (190 µg/L).

#### 5.1.5 Discussion

### *SOIL*

The investigations of suspected areas of debris and unknown geophysical anomalies located on Glass Beaches No. 1 through 3, resulted in the detection of limited amounts of scrap metal buried at Glass Beach No. 3, at approximately 1-2 fbg. The buried debris is visually evident along the coastal bluffs.

Soil samples collected from Parcel 1 were not impacted with TPH-G, SVOCs, PCBs, pesticides, or VOCs. Low to non-detectable concentrations of TPH-D was detected in samples collected from the Glass Beach areas and the pump house.

### *GROUNDWATER*

Groundwater samples collected from Parcel 1 were not impacted with TPH-G, TPH-MO, metals, VOCs, and SVOCs. TPH-D concentrations were not detected, at or above laboratory detection limits, from samples collected from Glass Beach No. 1. TPH-D was detected in the groundwater sample collected from the pump house (190 µg/l). Monitoring wells installed in Parcel 2, located to the south, should provide sufficient analytical and groundwater gradient coverage for the area.

#### 5.1.6 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- No further action is required at Glass Beaches No. 1 and No. 2.
- Remove scrap metal visible along coastal bluffs at Glass Beach No. 3.

## **5.2 Parcel 2**

Based on the Phase I Assessment, five areas of interest have been identified in Parcel 2. They include: Resaw No. 5, Glue Lam, Breezeway, Dry Shed No. 2, and the helicopter landing pad. This section presents the Phase I recommendations and Phase II activities and results within Parcel 2 for each area of interest. A discussion of findings and recommendations are presented in Sections 5.2.6 and 5.2.7, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 4. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment are included in Tables 2 through 7. Grab groundwater analytical data are included in Tables 8 through 11. Groundwater data from the monitoring wells are included in Table 12.

#### 5.2.1 Resaw No. 5

##### *PHASE I RECOMMENDATIONS*

- Investigate Resaw No. 5 for metals, solvents, and petroleum hydrocarbons:

##### *PHASE II ACTIVITIES AND RESULTS*

Five soil borings (P2-1 through P2-4 and P2-4a) were advanced in the Resaw No. 5 Building. Six soil samples were collected in the Resaw No. 5 building at depths ranging from 1 to 5 fbg and analyzed for metals and petroleum hydrocarbons. Four of the soil samples were analyzed for VOCs. Grab groundwater samples were collected from two of the five borings and analyzed for metals, petroleum hydrocarbons and VOCs.

One 4-inch monitoring well (MW-2.3) was installed in the Resaw No. 5 building. Soil samples were collected and analyzed for hydrocarbons and VOCs. Groundwater samples were analyzed for hydrocarbons.

##### *SOIL*

Detectable concentrations of metals in the soil samples from the Resaw No. 5 building are representative of those found in the greater area. VOCs were detected above the laboratory detection limits in soil sample P2-4a, collected from the western end of the building. TPH-D concentrations ranged from 3.3 mg/kg (P2-4 at 5 fbg) to 700 mg/kg (P2-3 at 1 fbg). TPH-G concentrations were detected in soil samples P2-4a at 2 fbg (6.7 mg/kg) and P2-4a at 5 fbg (19 mg/kg).

Petroleum hydrocarbons and VOCs were not detected at or above the laboratory detection limits in the soil sample collected from Resaw No. 5 during well installation activities.

##### *GROUNDWATER*

Levels of metals detected in groundwater are representative of levels in the greater area. TPH-D concentrations were detected in grab groundwater samples P2-2 (350 µg/L) and P2-4A (1,000 µg/L). TPH-G was detected in sample P2-4A (180 µg/L). VOCs were detected above the laboratory detection limits in the grab groundwater samples collected from the Resaw No. 5 building.

During measurements collected from January 2004 depth to water in monitoring well MW-2.3 was approximately 4 fbg. Groundwater collected from Monitoring Well MW-2.3 contained concentrations of TPH-G (110 µg/L). TPH-D was not detected at or above the laboratory detection limit. VOCs were not included in the sampling and analysis plan for the January 2004 event.

### 5.2.2 Glue Lam

#### *PHASE I RECOMMENDATIONS*

- Investigate the Glue Lam area for metals, solvents, and petroleum hydrocarbons:

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings (P2-5 and P2-6) were advanced in the Glue Lam Building. Two soil samples were collected at a depth of 2 fbg. Soil and groundwater samples were analyzed for metals, petroleum hydrocarbons, and VOCs.

One 4-inch monitoring well (MW-2.2) was installed in the vicinity of the Glue Lam building. One soil sample was collected and analyzed for hydrocarbons and VOCs. The groundwater sample was analyzed for hydrocarbons.

#### *SOIL*

Detectable concentrations of metals in the soil samples from the Glue Lam building are representative of those found in the greater area. Soil samples P2-5 at 2 fbg and P2-6 at 2 fbg contained concentrations of TPH-D (1.8 and 1,800 mg/kg, respectively). Methylene Chloride was detected slightly above laboratory detection limits in soil sample P2-5 at 2 fbg (0.055 mg/kg). Concentrations of other VOCs and TPH-G were not detected at or above laboratory detection limits.

Petroleum hydrocarbons and VOCs were not detected at or above the laboratory detection limit in the soil sample collected from the Glue Lam building during well installation activities.

#### *GROUNDWATER*

Detectable levels of metals in groundwater are representative of levels in the greater area. TPH-D concentrations were detected in grab groundwater samples P2-5 (490 µg/L) and P2-6 (92 µg/L). TPH-G was not detected at or above the laboratory detection limit. Concentrations of VOCs were detected slightly above the laboratory detection limits in the grab groundwater samples collected from the Glue Lam building.

During measurements collected from January 2004 depth to water in Monitoring Well MW-2.2 was approximately 3 fbg. Concentrations of TPH-D and TPH-G were not detected at or above the laboratory detection limits in the groundwater sample collected from Monitoring Well MW-2.2.

### 5.2.3 Breezeway

#### *PHASE I RECOMMENDATIONS*

- Investigate the Breezeway for metals and petroleum hydrocarbons:

#### *PHASE II ACTIVITIES AND RESULTS*

One soil boring (P2-7) was advanced in the Breezeway. One soil sample was collected at a depth of 1 fbg and analyzed for metals and petroleum hydrocarbons. No grab groundwater sample was collected.

### *SOIL*

Detectable concentrations of metals in the soil samples from the Breezeway are representative of those found in the greater area. Soil sample P2-7 at 1 fbg contained concentrations of TPH-D (17 mg/kg).

#### 5.2.4 Dry Shed No. 2

### *PHASE I RECOMMENDATIONS*

- Investigate the Dry Shed No. 2 building for metals and petroleum hydrocarbons:

### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings (P2-8 and P2-9) were advanced in the Dry Shed No. 2 Building. Two soil samples were collected at a depth of 1 fbg and analyzed for metals and petroleum hydrocarbons. No grab groundwater samples were collected.

### *SOIL*

Detectable concentrations of metals in the soil samples from the Dry Shed No. 2 building are representative of those found in the greater area. Soil samples P2-8 at 1 fbg and P2-9 at 1 fbg contained concentrations of TPH-D (19 and 29 mg/kg, respectively). TPH-G was not detected at or above laboratory detection limits.

#### 5.2.5 Helicopter Landing Pad

### *PHASE I RECOMMENDATIONS*

- Investigate the Helicopter Landing Pad for petroleum hydrocarbons:

### *PHASE II ACTIVITIES AND RESULTS*

One soil boring (P2-11) was advanced in the Helicopter Landing Pad. One soil sample was collected at a depth of 1 fbg. Soil and groundwater samples were analyzed for petroleum hydrocarbons.

One 4-inch monitoring well (MW-2.1) was installed in the vicinity of the Helicopter Landing Pad. A soil sample was collected and analyzed for hydrocarbons and VOCs. The groundwater sample was analyzed for hydrocarbons.

### *SOIL*

TPH-D was detected in soil sample P2-11 at 1 fbg (13 mg/kg). TPH-G was not detected at or above the laboratory detection limit.

Acetone, often a laboratory artifact, was detected in sample MW-2.1 at 5 fbg (0.030 mg/kg) slightly above the laboratory detection limit in the soil sample collected from the Helicopter Landing Pad during well installation activities. Concentrations of other VOCs, TPH-D, TPH-MO, and TPH-G were not detected in the soil sample.

#### *GROUNDWATER*

TPH-D was detected in grab groundwater sample P2-11 (180 µg/L), collected from the Helicopter Landing Pad.

During measurements collected from January 2004, depth to water in Monitoring Well MW-2.1 was approximately 5 fbg. Concentrations of TPH-D and TPH-G were not detected at or above the laboratory detection limits in the groundwater sample.

#### 5.2.6 Discussion

##### *SOIL*

Soil samples collected in Parcel 2 were not impacted with metals. Elevated levels of TPH-D and VOCs in soil samples indicate impacts to shallow soil at the western end of the Resaw No. 5 and Glue Lam buildings. However, VOCs were not detected at or above laboratory detection limits in nearby soil samples. Additionally, groundwater samples from P2-6 and MW-2.2, located on the western end of the Glue Lam Building, do not indicate that the groundwater was impacted by TPH-D.

#### *GROUNDWATER*

Groundwater samples collected in Parcel 2 were not impacted with metals. During measurements collected from January 2004, depth to water in Parcel 2 ranged from 3 to 5 fbg with a flow direction to the southwest. Concentrations of TPH-G (110 µg/L) were detected in the sample collected from upgradient Monitoring Well MW-2.3, located within the Resaw No. 5 structure. However, TPH-G was not detected at or above the laboratory detection limit in downgradient well MW-2.2.

VOCs were detected slightly above laboratory detection limits in grab groundwater samples collected from the western end of the Resaw No. 5 and Glue Lam Buildings. Due to the low concentrations detected in grab groundwater samples, VOCs were not included in the sampling and analysis plan for the January 2004 sampling event. However, VOCs analysis should be included in the next groundwater monitoring and sampling event.

#### 5.2.7 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- No further action is required in the Breezeway, Dry Shed No. 2, and the Helicopter Landing Pad.
- Add VOCs analysis to groundwater sampling plan for next monitoring and sampling event.
- Excavate soil in vicinity of P2-3 (700 mg/kg) and P2-6 (1,800 mg/kg) to a minimum depth of 3 fbg due to TPH-D impacts.
- Continue quarterly monitoring and sampling of existing wells for one year.

### 5.3 Parcel 3

Based on the Phase I Assessment, twelve areas of concern have been identified in Parcel 3. They include transformers (areas where transformers were located or previously located), the Scrap Yard, Railroad Spurs, Planer No. 50, Former Planer No. 1, Dry Sheds No. 4 and 5, Former Mobile Equipment Shop, Construction Engineering, Kilns Area, Compressor House, Machine Shop/Plumbing/Plant Supply, and the Covered Shed. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 3 for each area of concern. A discussion of findings and recommendations are presented in Sections 5.3.13 and 5.3.14, respectively.

Sampling locations and investigation activities are presented in Figure 2 and Figures 5 through 7. The Site assessment chronology, including detailed sample identification and locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data are included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

#### 5.3.1 Transformers

##### *PHASE I RECOMMENDATIONS*

- Investigate soils at the Scrap Yard for possible PCBs, since transformers were identified here during the Phase I assessment.
- Investigate the soils at the overhead transformer area at southeast corner of Planer No. 50 for possible PCBs.
- Investigate the soils for PCBs around and underneath transformer pads along the northern side of Former Planer No. 1 and at the former overhead transformer location in the southeast corner.
- Investigate northwest corner of Dry Shed No. 4 where transformers were previously stored for possible presence of PCBs.
- Investigate soils around and underneath transformer boxes south of the kilns for possible presence of PCBs.
- Investigate soils underneath overhead transformer (south of Compressor House) for presence of PCBs.

##### *PHASE II ACTIVITIES & RESULTS*

Thirteen surface soil samples were collected based on the above Phase I recommendations and analyzed for PCBs. PCBs (as Aroclor 1242) were detected at 0.14 mg/kg in soil sample P3-3 (at 0.5 fbg), located at the Scrap Yard. PCBs were not detected in any other soil samples collected in Parcel 3 above laboratory reporting limits.



### 5.3.2 Scrap Yard

#### *PHASE I RECOMMENDATIONS*

- Investigate Scrap Yard area for debris-related contaminants including metals, PCBs, petroleum hydrocarbons and VOCs.

#### *PHASE II ACTIVITIES & RESULTS*

Three soil samples were collected at approximately 6 inches below the surface and analyzed for metals, petroleum hydrocarbons, and VOCs.

TPH-D was detected at 490 mg/kg, 39 mg/kg, and 350 mg/kg in samples P3-1 through P3-3, respectively. TPH-G and VOCs were non-detectable. Detectable levels of lead ranged from 11 mg/kg to 68 mg/kg. Detectable levels of other metals are consistent with background levels found in the greater region.

### 5.3.3 Railroad Spurs

#### *PHASE I RECOMMENDATIONS*

- Investigate railroad spurs for hydrocarbons, metals, and SVOCs from locomotives and railroad ties.

#### *PHASE II ACTIVITIES & RESULTS*

Ten soil samples were collected at approximately 6 inches below ground surface along the railroad spurs in Parcel 3 and analyzed for hydrocarbons, metals, and SVOCs. In addition, four potholes were completed along the railroad spurs to depths ranging from 3.5 fbg to 5 fbg.

The highest level of TPH-D was detected in sample P3-12 at 1,900 mg/kg. THP-D was detected in the remaining soil samples ranging from 2.5 mg/kg to 93 mg/kg. SVOCs were not detected. Detectable levels of metals represent background conditions of the greater area.

Potholes did not uncover debris or material that indicate impacts to soil or groundwater.

### 5.3.4 Planer No. 50

See Section 5.3.1, Transformers, for Phase I recommendations and Phase II activities and results associated with Planer No. 50.

### 5.3.5 Former Planer No. 1

#### *PHASE I RECOMMENDATIONS*

- Remove the stained sand and wood from the equipment foundations at Former Planer No. 1. Investigate the soil below the foundations for solvents.
- Characterize and remove (i.e., dispose of) residual liquid in former oil drum storage containment and investigate soils around and underneath the containment at the southeast corner of Former Planer No. 1.

## *PHASE II ACTIVITIES & RESULTS*

Six soil samples were collected at equipment foundations and former oil drum storage location at depths ranging from 1-2.5 fbg and analyzed for VOCs and petroleum hydrocarbons.

Three 4-inch monitoring wells were installed in the Former Planer No. 1 area (MW-3.7 and MW-3.8 to 25 fbg, and MW-3.9 to 20 fbg). Soil and groundwater samples were collected and analyzed for hydrocarbons.

The sand and wood from the equipment foundations at the former Planer No. 1 will be removed and disposed of during building demolition activities. Residual liquid from the former oil drum storage containment has been removed and the secondary containment has been cleaned out. Rainwater occasionally collects in the containment and later evaporates.

## *SOIL*

Levels of TPH-D were detected in three samples slightly above the laboratory reporting limit. TPH-G and VOCs were not detected in the soil samples.

TPH-D and TPH-MO concentrations were detected in soil samples MW-3.7 at 5 fbg (4.2 and 45 mg/kg, respectively) and MW-3.9 at 5 fbg (67 and 140 mg/kg, respectively). TPH-D and TPH-MO were not detected in soil samples collected from MW-3.8.

A soil investigation completed by TRC in January 1998 included soil borings on Parcel 3 at Former Planar No.1, Planar No. 50, and at the Green Chain location, south of the Yard Office (extending from former Sawmill on Parcel 5) (TRC, 1998). At Planer No. 1, the highest TPH-D concentrations detected were at 610 mg/kg and 500 mg/kg (0.5 fbg). Elevated TPH-motor oil was detected in Planer No. 1 in four samples ranging from 1,200 mg/kg (2.5 fbg) to 2,900 mg/kg (0.5 fbg). At Planer No. 50, TPH-motor oil was detected at 430 mg/kg (0.5 fbg). At the former Green Chain, TPH-motor oil was detected at 1,600 mg/kg (0.5 fbg). The report is included in Appendix F (without attachments).

## *GROUNDWATER*

Hydrocarbons were not detected in groundwater samples collected from MW-3.7 through MW-3.9. Based on measurements taken in January 2004, depth to groundwater is approximately 4-6 feet and the gradient was to the southwest.

### 5.3.6 Dry Sheds No. 4 and 5

## *PHASE I RECOMMENDATIONS*

- Investigate outside the northwest corner of Dry Shed No. 4 at the dip tank for possible presence of VOCs and SVOCs.

## *PHASE II ACTIVITIES & RESULTS*

Two soil borings were completed and soil samples were collected at 5 fbg. VOCs and SVOCs were not detected.

### 5.3.7 Former Mobile Equipment Shop

#### *PHASE I RECOMMENDATIONS*

- Characterize and remove (i.e., dispose offsite) residual liquid in the catch basin and concrete sump at the Former Mobil Equipment Shop area. Also investigate soils in the area and underneath existing building foundations and piping with hydrocarbon odors for PCBs, VOCs and petroleum hydrocarbons.
- Investigate soils east of the Former Mobil Equipment Shop for possible petroleum hydrocarbons.

#### *PHASE II ACTIVITIES*

Ten soil borings were completed in the area of the Former Mobile Equipment Shop. Soil samples were collected at depths ranging from 1-5 fbg and analyzed for metals, VOCs, hydrocarbons, and PCBs. Grab groundwater samples were collected from five borings and analyzed for metals, VOCs, and hydrocarbons.

Three monitoring wells were installed in the vicinity of the Former Mobile Equipment Shop (MW-3.1 to 24.5 fbg, MW-3.2 to 23.5 fbg, and MW-3.3 to 25 fbg). Soil samples were collected and analyzed for VOCs and hydrocarbons. Groundwater was analyzed for hydrocarbons.

#### *SOIL*

TPH-D was detected in soil boring samples at 4,800 mg/kg (P3-29 at 2 fbg), 3,200 mg/kg (P3-35 at 2 fbg), and 350 mg/kg (P3-37 at 1 fbg). TPH-D was detected in other soil boring samples ranging from 1.8 mg/kg to 96 mg/kg.

TPH-D concentrations were detected in soil samples MW-3.2 at 5 fbg (4.8 mg/kg) and at 10 fbg (780 mg/kg). TPH-G was also detected in MW-3.2 at 10 fbg (340 mg/kg). Low level concentrations of VOCs were detected in both soil samples from MW-3.2 (at 5 and 10 fbg). TPH-G and TPH-D were not detected in soil samples collected from wells MW-3.1 or MW-3.3. TPH-MO was not detected at or above the laboratory detection limit in soil samples collected from these three wells.

#### *GROUNDWATER*

Select VOCs were detected in grab groundwater samples collected from borings at low levels slightly above the laboratory reporting limit. Detectable levels of TPH-D from grab groundwater samples range from 72 µg/L to 35,000 µg/L. Detectable levels of metals in groundwater represent levels in the greater area.

Groundwater samples collected from MW-3.2 contained detectable concentrations of TPH-D (400µg/L) and TPH-G (180 µg/L). Hydrocarbons were not detected in groundwater samples collected in MW-3.1 and MW-3.3. Based on measurements taken in January 2004, depth to water is approximately 5-6 feet and the gradient was to the southwest.

### 5.3.8 Construction Engineering

#### *PHASE I RECOMMENDATIONS*

- Investigate Construction Engineering storage areas related to paint, thinners, solvents, PCBs, petroleum hydrocarbons and metals.
- Investigate portable shed by Construction Engineering previously used for storing used paint thinner for solvents and petroleum hydrocarbons.

#### *PHASE II ACTIVITIES*

Seven soil borings were completed in the Construction Engineering area. Soil samples were collected at depths ranging from 1-5 fbg and analyzed for metals, VOCs, hydrocarbons, and PCBs. Six grab groundwater samples were collected and analyzed for metals, VOCs, and hydrocarbons.

#### *SOIL*

Levels of VOCs were detected slightly above the laboratory reporting limit. Detectable levels of TPH-D ranged from 2.5 mg/kg to 170 mg/kg. TPH-G and PCBs were not detected. Detectable levels of metals represent those found in the greater area.

#### *GROUNDWATER*

VOCs were detected in two grab groundwater samples at levels slightly above the laboratory reporting limit. TPH-D was detected in four samples ranging from 55 µg/L to 180 µg/L. Metals were detected in groundwater at levels common to the area.

### 5.3.9 Kilns Area

See Section 5.3.1, Transformers, for Phase I recommendations and Phase II activities and results associated with the Kilns Area.

One surface soil sample was collected at 0.5 fbg from the Kiln ramp for the purpose of profiling potential fill material. Concentrations of TPH-D (19 mg/kg) and TPH-MO (57 mg/kg) were detected. Low levels of metals were detected. VOCs and SVOCs were not detected at or above the laboratory detection limit.

### 5.3.10 Compressor House

#### *PHASE I RECOMMENDATIONS*

- Investigate Compressor House area for hydrocarbons.

#### *PHASE II ACTIVITIES*

Two soil borings were completed near the Compressor House. Soil samples were collected at depths ranging from 0.5-4 fbg and analyzed for hydrocarbons. Grab groundwater samples were collected from each boring and analyzed for hydrocarbons. Subsequently groundwater monitoring wells were installed near the Compressor House. Groundwater and soil in this area was further assessed in coordination with Parcel 5. See Parcel 5 Section 5.5.1 for further details.

## *SOIL*

Detectable levels of TPH-D ranged from 68 mg/kg to 2,000 mg/kg (P3-47 at 4 fbg). TPH-G was detected in P3-47 at 4 fbg at 36 mg/kg.

## *GROUNDWATER*

TPH-D and TPH-G were detected in grab groundwater samples P3-46 at 200,000 µg/L and 110 µg/L, respectively, and P3-47 at 23,000 µg/L and 170 µg/L, respectively.

### 5.3.11 Machine Shop/Plumbing/Plant Supply

#### *PHASE I RECOMMENDATIONS*

- Investigate Machine Shop, nearby shed, Sheet Metal/Plumbing, for solvents and petroleum hydrocarbons.

#### *PHASE II ACTIVITIES*

A geophysical survey was conducted adjacent to the west of the Machine Shop, covering an area approximately 20-30 feet wide by 105 feet long.

Seven soil samples were completed in the area of the Machine Shop, Sheet Metal/Plumbing and Covered Shed. Soil samples were collected at depths ranging from 1-8 fbg and analyzed for metals, VOCs, hydrocarbons, and PCBs. Grab groundwater samples were collected from three of the borings and analyzed for metals, VOCs, and hydrocarbons.

Subsequently, three 4-inch monitoring wells were installed in the area of the Machine Shop (MW-3.4 to 21 fbg, MW-3.5 and MW-3.6 to 13 fbg). Soil samples were not collected due to the high water table in the area. Groundwater was analyzed for hydrocarbons.

#### *GEOPHYSICAL SURVEY*

During the geophysical survey west of the Machine Shop, a 5-foot by 15-foot anomaly consistent with a UST was detected with metal detector consistent with a UST. However, the nature of this anomaly could not be confirmed using ground penetrating radar. The 5-foot by 15-foot geophysical anomaly located outside (east) of the Machine Shop Building area was further investigated using a backhoe. The pot hole was completed by TRC personnel using the backhoe to a depth of 5 fbg. No UST was encountered. A small pothole containing buried wood and metal debris was encountered at 1.5 fbg. Concentrations of TPH-D (29 mg/kg) and TPH-MO (150 mg/kg) were detected in the soil sample (P3-TP1) collected at 4 fbg (below the pothole). Low levels of SVOCs were also detected in the soil sample. VOCs and PCBs were not detected.

Two smaller anomalies were also detected. The smaller anomalies are consistent with results representing small debris.

Underground utilities were located including storm drain lines and compressed air line in the southern portion of the survey area and an undifferentiated utility in the northeast portion of the survey area

### *SOIL*

VOCs were detected in selected soil samples slightly above laboratory detection limits. The highest level of TPH-D was detected at 960 mg/kg in P3-51 at 1 fbg. Other levels of TPH-D range from non-detectable to 270 mg/kg (P3-50 at 1 fbg). Detectable levels of metals are consistent with levels found in the region.

### *GROUNDWATER*

VOCs were detected in two grab groundwater samples at or slightly above laboratory detection limits. TPH-D was detected at 4,100 µg/L (P3-51) and 670 µg/L (P3-52). TPH-G was not detected. Hydrocarbons were not detected in groundwater samples collected from monitoring wells MW-3.4, MW-3.5, and MW 3.6. Metals detected in groundwater are consistent with background levels. Based on measurements taken in January 2004, depth to water is 1-2 feet and the gradient was to the southwest.

#### 5.3.12 Covered Shed

##### *PHASE I RECOMMENDATIONS*

- Investigate the Covered Shed area for solvents and petroleum hydrocarbons.

##### *PHASE II ACTIVITIES*

Two soil borings were completed near the Covered Shed. Soil samples were collected at depths ranging from 1-5 fbg and analyzed for metals, VOCs, and hydrocarbons. Grab groundwater samples were collected from each boring and analyzed for metals, VOCs, and hydrocarbons.

### *SOIL*

Selected VOCs were detected slightly above laboratory reporting limits. TPH-D and TPH-MO was detected at 1,800 mg/kg and 6,800 mg/kg, respectively in P3-54 at 1 fbg and in the other samples ranging from 21 mg/kg to 150 mg/kg and 110 mg/kg to 170 mg/kg, respectively. Detectable levels of metals are consistent with those found in the greater area.

### *GROUNDWATER*

VOCs were detected at or above the laboratory detection limit in grab groundwater sample collected from boring P3-54. TPH-D and TPH-MO were detected in P3-54 at 240 µg/L and 520 µg/L, respectively, and in P3-55 at 190 µg/L and 350 µg/L, respectively. TPH-G was not detected in either grab groundwater sample. Metals were detected at levels comparable to those in the greater area.

#### 5.3.13 Discussion

### *SOIL*

The nature of the unknown anomaly west of the Machine Shop resulted as buried metal debris. Results from the soil sample collected underneath the debris indicate low levels of hydrocarbon impacted soil.

Soil samples collected in Parcel 3 were not impacted with metals, VOCs, SVOCs, or PCBs.

Two of three samples collected at the Scrap Yard indicate possible impacts to shallow soil (350-490 mg/kg at 0.5 fbg). This soil is located in a thin layer of soil underlain by bedrock near the edge of a tall coastal bluff. It is considered unlikely that these soils have the potential to impact groundwater with beneficial uses.

One sample collected along the railroad spurs on the north side of Parcel 3 indicates elevated level of TPH-D at 0.5 fbg.

Shallow soil (0-3 fbg) at the Former Mobile Equipment Shop area is impacted with hydrocarbons (TPH-D). Levels of hydrocarbons decrease as depth increases. However, elevated levels of TPH-D and TPH-G were detected at 10 fbg at MW-3.2.

Hydrocarbon impacts to soil exist at the Compressor House. Elevated levels of hydrocarbons were found at one location (P3-47) at 4 fbg, however surface samples and a nearby sample at 4 fbg contained low levels of hydrocarbons. Further soil assessment was conducted near the Compressor House; results are presented in Parcel 5 Section 5.5.1.

Elevated TPH-D at the Machine Shop in one sample (P3-51) indicates impacted soil. Nearby samples show elevated levels do not extend to the north, south, west, or with depth, therefore this appears to be an isolated 'hot spot'. Motor oil impacts in one sample north of the Machine Shop (P3-49) indicate impacted soil.

Results indicate hydrocarbon impacts to shallow soil at one of two sample locations at the Covered Shed.

#### *GROUNDWATER*

Groundwater samples collected in Parcel 3 were not impacted with metals, VOCs, or SVOCs. Based on data collected in January 2004, the groundwater gradient was to the southwest and depth to water ranged from 1-6 feet.

Groundwater in the up gradient well (MW-3.2) at the Former Mobile Equipment Shop area indicates detectable levels of hydrocarbons. Non-detectable levels of hydrocarbons in MW-3.1 and MW-3.3 (down gradient of MW-3.2) indicate groundwater is not affected by soil impacts at the Former Mobile Equipment Shop.

Groundwater in the vicinity of the Compressor House was further investigated with activities associated with Parcel 5; results are presented in Parcel 5 Section 5.5.1.

Non-detectable levels of hydrocarbons in groundwater samples collected from wells MW-3.1, and MW-3.3 through MW-3.9 indicate no hydrocarbon impacts to groundwater.

#### 5.3.14 Recommendations

Based on the results of the Phase II Assessment in Parcel 3, TRC recommends the following:

- No further action at transformers, Scrap Yard, Planer No. 50, Former Planer No. 1, Dry Sheds No. 4 and 5, Construction Engineering, and at the Kilns.

- Further investigate soil along the Railroad Tracks at P3-12 due to TPH-D impacts at 0.5 fbg.
- Remove the catch basin and sump (including residual liquid) at the Former Mobil Equipment Shop and excavate adjacent soils.
- Remove concrete foundations of former buildings at the Former Mobil Equipment Shop and excavate soils at P3-35 (minimum 2 fbg) due to TPH-D impacts.
- Excavate soils in vicinity of P3-47 at the Compressor House to minimum depth of 4 fbg due to TPH-D impacts.
- Once the building is demolished, excavate surface soils (minimum 1 fbg) to address TPH-D and TPH-MO impacts at the Machine Shop/Sheet Metal building.
- Further investigate soils at the Covered Shed (P3-54) to assess TPH-D and TPH-MO impacts.
- Continue quarterly groundwater monitoring and sampling of installed wells on Parcel 3 for one year.

#### **5.4 Parcel 4**

Based on the Phase I Assessment, eight areas of concern have been identified in Parcel 4. They include transformers (areas where transformers were located or previously located), Ponds, Former Bunker Fuel ASTs, Power House Fuel Storage, Power House, Cooling Towers, Press Building, and Oil Storage Shed. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 4 for each area of concern. A discussion of findings and recommendations are presented in Sections 5.4.9 and 5.4.10, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 8. The Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11 (including surface water collected at the Ponds, see Section 5.4.2). Groundwater data from the monitoring wells is included in Table 12.

##### **5.4.1 Transformers**

###### ***PHASE I RECOMMENDATIONS***

- Investigate areas surrounding transformer pad (adjacent to Power House), other transformers on the ground and soil below overhead transformers for possible PCBs.

###### ***PHASE II ACTIVITIES AND RESULTS***

Ten surface soil samples were collected and analyzed for PCBs. PCBs were not detected in soil samples collected associated with transformers.

##### **5.4.2 Ponds**

###### ***PHASE I RECOMMENDATIONS***

- Investigate sediments in and around the Ponds for possible metals and cyanide, and petroleum hydrocarbon impacted areas.



## *PHASE II ACTIVITIES AND RESULTS*

Pond 5, located east of the Log Pond on Parcel 4, was not utilized for industrial processes. This water was pumped from Pudding Creek and used for makeup water. It is highly unlikely for sediments in this pond to be impacted from site operations. Therefore, sediment samples were not collected.

Ponds 6 and 7 are the small ponds west of the Power House. Pond 6 is essentially a low-spot where stormwater naturally collects and evaporates. Sediment samples were not collected from Pond 6. Two surface water samples were collected at the north and south ends (WCP1 and WCP2) and analyzed for metals, hydrocarbons, VOCs, and SVOCs. Results indicated Pond 6 is not impacted.

Pond 7 was formerly used as a settling pond for a hydraulic de-barker. Sediment samples will be collected as the water subsides.

Sediment samples were not collected from the Log Pond based on results from sediment samples collected from ponds in Parcel 7. Water from the Log Pond comes directly from these ponds in Parcel 7. Analytical results from these pond sediments indicate no impacts (see Parcel 7, Section 5.7.5).

### 5.4.3 Former Bunker Fuel ASTs

#### *PHASE I RECOMMENDATIONS*

- Investigate soil and groundwater at the Former Bunker Fuel AST location and associated railroad track area for petroleum hydrocarbons.
- Investigate the former Bunker Fuel AST area to locate possible tracks and fuel piping (via geophysical survey).

#### *PHASE II ACTIVITIES AND RESULTS*

Six soil samples were collected in the Former Bunker Fuel AST location and railroad track area at a depth of 6 inches below the surface and analyzed for metals, hydrocarbons, VOCs, and SVOCs. Levels of metals do not indicate impacted soils. TPH-D was detected ranging from 3.3 to 29 mg/kg. TPH-G was not detected above laboratory detection limits. VOCs were detected slightly above laboratory detection limits in P4-11. SVOCs were not detected.

During field assessment activities, soil staining and a hydrocarbon odor was noted at P4-17. TPH-D was detected at 42 mg/kg. TPH-G was not detected. Soil borings to collect deeper soil samples and groundwater samples in this area were not completed due to several subsurface utilities and pipelines detected by the geophysical survey (see below).

#### *GEOPHYSICAL SURVEY*

The area at the Former AST location and associated railroad tracks investigated by geophysical survey is 'L'-shaped, approximately 260-feet long and 100-feet wide. Several utilities and pipelines were located in this area in addition to concrete, wood, and piping debris.

Undifferentiated utilities were detected in the corner areas and the north area of the survey location. Three anomalies were located north of the Water Treatment Building. The source of the anomalies was not determined.

#### 5.4.4 Power House Fuel Storage

##### *PHASE I RECOMMENDATIONS*

- Investigate the Power House Fuel Storage area for petroleum hydrocarbons.

##### *PHASE II ACTIVITIES*

Four soil borings were completed at the Power House Fuel Storage area. Soil samples (collected at 6 inches below surface) and grab groundwater samples (two) were collected and analyzed for metals, hydrocarbons, and SVOCs.

##### *SOIL*

TPH-D was detected ranging from 3.9 to 37 mg/kg. TPH-G was not detected. SVOCs were not detected. Detectable levels of metals in soil do not indicate impacts.

##### *GROUNDWATER*

TPH-D (without SGCU) was detected at 54 µg/L (P4-15) and 330 µg/L (P4-16). However, TPH-D with SGCU in P4-16 indicated TPH-D at 53 µg/L. TPH-G, TPH-MO, and SVOCs were not detected. Detected levels of metals (barium and selenium only) are consistent with regional background levels.

#### 5.4.5 Power House

##### *PHASE I RECOMMENDATIONS*

- Characterize soils for metals and solvents at the Power House.

##### *PHASE II ACTIVITIES*

A subsurface geophysical survey was completed on the north side of the Power House. Four monitoring wells (MW-4.1 to 28 fbg, MW-4.2 to 29 fbg, MW-4.3 and MW-4.4 to 30 fbg) were completed in the Power House Area. Soil samples were collected at depths ranging from 1.5 to 5 fbg and analyzed for hydrocarbons and VOCs. Groundwater samples were collected and analyzed for hydrocarbons and VOCs.

##### *GEOPHYSICAL SURVEY*

The geophysical survey conducted on the north side of the Power House encompassed an area of approximately 180-feet long by 30-feet wide. Several utilities were detected in the area including electric, fire suppression, and undifferentiated utility lines. Two metal detector anomalies were located most likely representing small miscellaneous metallic debris. A third anomaly, approximately 8-feet by 13-feet, was detected just outside the survey limits to the south. Results of ground penetrating radar were inconclusive. The anomaly may lie deeper than detection capabilities (2 to 3 feet).

## *SOIL*

TPH-D was detected in two soil samples at 72 mg/kg (MW-4.1 at 1.5 fbg) and 99 mg/kg (MW-4.4 at 5 fbg). TPH-MO was detected at 450 mg/kg (MW-4.1 at 1.5 fbg) and 230 mg/kg (MW-4.4 at 5 fbg). VOCs were not detected in soil samples.

## *GROUNDWATER*

TPH-D was detected in one monitoring well, MW-4.3, at 76 µg/L. VOCs were not detected in wells at the Power House area. Based on data collected in January 2004, the groundwater gradient was to the west-southwest direction and depth to groundwater is approximately 3-6 feet.

### 5.4.6 Cooling Towers

#### *PHASE I RECOMMENDATIONS*

- No Phase I recommendations, however investigation of chromium was completed per request of the RWQCB.

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings were completed near the Cooling Towers for the purpose of assessing possible chromium impacts to soil during operation. Soil samples were collected from 0.5 fbg and 5 fbg in each boring. Chromium concentrations ranged from 8.6 mg/kg to 23 mg/kg. Hexavalent chromium was not detected.

### 5.4.7 Press Building

#### *PHASE I RECOMMENDATIONS*

- Investigate soils for possible hydrocarbons.

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings (P4-21 and P4-22) were completed at the Press Building at depths ranging from 0.5 to 3 fbg and analyzed for hydrocarbons. The shallow sample at P4-22 was also analyzed for PCBs. TPH-D in P4-21 ranged from 6.4 mg/kg (3 fbg) to 350 mg/kg (0.5 fbg). TPH-D was detected at 88 mg/kg in P4-22 (0.5 fbg). TPH-G was not detected in soil samples. PCBs were not detected in soil samples.

It should be noted that potholes were completed in the east area of Parcel 4 as part of the supplemental assessment on Parcel 5. See Section 5.5.1, Parcel 5 for a detailed discussion of findings.

### 5.4.8 Oil Storage Shed

#### *PHASE I RECOMMENDATIONS*

- Investigate soils for possible hydrocarbons at the Oil Storage Shed.

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil samples were collected at the Oil Storage Shed at 0.5 fbg and analyzed for hydrocarbons, VOCs, SVOCs (also analyzed for PCBs due to nearby transformers, see Section 5.4.1 Transformers). TPH-D was detected at 95 mg/kg (P4-24) and 290 mg/kg (P4-23). TPH-G, VOCs, and SVOCs were not detected.

#### 5.4.9 Discussion

##### *SOIL*

Soil samples collected in Parcel 4 were not impacted with metals, VOCs, SVOCs, or PCBs. Two soil samples north and northeast of the Power House indicate shallow hydrocarbon impacted soil. Hydrocarbon analytical results in nearby soil samples were low to non-detectable. Non-detectable levels of hydrocarbons in nearby groundwater well MW-4.4 do not indicate groundwater impacts (see groundwater discussion below). Soil samples collected in the remaining areas of Parcel 4 indicated low to non-detectable levels of hydrocarbons. Soil at the Cooling Towers is not impacted with chromium.

During pothole activities in the east area of Parcel 4 (as part of Parcel 5 investigation activities), free product was encountered. See Section 5.5.1 for a detailed explanation.

##### *GROUNDWATER*

Groundwater samples collected in Parcel 4 were not impacted with metals or SVOCs. It was noted that soil staining was observed and hydrocarbon odors encountered at the Former Bunker AST location. However, well MW-4.2 indicated non-detectable hydrocarbon levels. MW-4.2 appears to be down gradient of the Former Bunker AST area (and cross gradient from the Power House). MW-4.3 on Parcel 4 was the only monitoring well with detectable levels of hydrocarbons in groundwater (76 µg/L as TPH-D).

Based on measurements taken in January 2004, the groundwater gradient appears to be in the west-southwest direction. Depth to groundwater is approximately 3-6 feet.

#### 5.4.10 Recommendations

Based on the results of the Phase II Assessment in Parcel 4, TRC recommends the following:

- No further action at the transformers, Power House Fuel Storage, Cooling Towers, Press Building, or Oil Storage Shed.
- Investigate soils and anomalies in the Former Bunker Fuel AST area after power lines have been removed.
- Further assess soil and groundwater specifically at P4-17 at the Former Bunker Fuel AST area due to soil staining and hydrocarbon odor observed.
- Assess soil and groundwater beneath the Power House (this area was inaccessible during the Phase II investigation).
- Further investigate the source of the geophysical anomaly (approximately 8 feet by 13 feet) at the Power House.
- Collect sediment samples at Pond 7.
- Continue quarterly groundwater monitoring and sampling of installed wells on Parcel 4 for one year.

## 5.5 Parcel 5

Based on the Phase I Assessment, twelve areas of concern have been identified in Parcel 5. They include: Sawmill No. 1, Log Pond, area west of the Mobile Equipment Shop (includes underground lines to fuel area and diesel concrete pad), transformer pad, Mobile Equipment Shop, Washdown Building, Fuel Storage and Dispenser Building, Tire Shop, Gas Station Area, Old Shingle Mill, Former Boarding House Area, and Log Pond Fill area. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 5 for each of the areas of concern. A discussion of findings and recommendations are presented in Section 5.5.13 and 5.5.14, respectively.

Sampling locations and investigation activities are presented in Figure 2 and Figures 9 through 12. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

### 5.5.1 Sawmill No. 1

#### *PHASE I RECOMMENDATIONS*

- Investigate areas identified in TRC's *Report of Findings Preliminary Investigation Demolition Support Services* (southwest of Sawmill No. 1), (Appendix F) for possible diesel and motor oil impacted areas.

#### *PHASE II ACTIVITIES & RESULTS*

Four soil borings (P5-1 through P5-4) were completed in the Sawmill No. 1 area. During advancement of boring P5-3 refusal was met at approximately 3 fbg due to buried debris. Additionally, shallow hydrocarbon impacted soil was observed in P5-4. Four soil samples were collected from borings P5-1 through P5-3 at depths ranging from 1 to 5 fbg and analyzed for petroleum hydrocarbons and SVOCs. Grab groundwater samples were collected from three borings (P5-1, P5-2, and P5-4) and analyzed for petroleum hydrocarbons and SVOCs.

Four potholes (TP-8 through TP-11) were excavated in the former Sawmill No. 1 area for the purpose of investigating subsurface anomalies detected during advancement of soil borings P5-3 and P5-4. Potholes were completed to a depth of approximately 3 fbg. Immediately below the exposed concrete foundation, large wood beams were encountered which are thought to be the original foundation of Sawmill No. 1. Below the wood foundation, hydrocarbon impacted soil and liquid phase hydrocarbons were encountered at approximately 3 fbg. One soil sample (sawmill) was collected from TP-8 at 0.5 fbg and analyzed for petroleum hydrocarbons, VOCs, SVOCS, and PCBs. Hydrocarbon impacted soil was not observed in an additional pothole completed to the south of the Sawmill No. 1 area.

Four 4-inch monitoring wells (MW-5.6 through MW-5.9) were installed in the Sawmill No. 1 area. Soil samples were collected and analyzed for hydrocarbons and VOCs. Groundwater samples were analyzed for hydrocarbons.

### *SOIL*

Concentrations of TPH-D in the soil samples ranged from 68 mg/kg (P5-3 at 1 fbg) to 2,100 mg/kg (P5-2 at 1 fbg). TPH-G was detected in soil sample P5-3 at 1 fbg (6.8 mg/kg). TPH-MO and SVOCs were not detected in the soil samples from the Sawmill No. 1 area.

Concentrations of TPH-D (8,400 mg/kg), TPH-MO (14,000 mg/kg), and Methylene Chloride (0.024 mg/kg) were detected in the soil sample collected from potholes completed in the Sawmill No. 1 area. Concentrations of SVOCs and PCBs were not detected, at or above the laboratory detection limit.

Concentrations of TPH-D and TPH-MO in soil samples collected from monitoring well installation activities ranged from 5.5 mg/kg (MW-5.7 at 5 fbg) to 36 mg/kg (MW-5.6 at 5 fbg) and 16 mg/kg (MW-5.7 at 5 fbg) to 93 mg/kg (MW-5.6 at 5 fbg), respectively. Concentrations of VOCs were not detected, at or above laboratory detection limits.

A soil investigation completed by TRC in January 1998 included soil borings at Sawmill No. 1 in Parcel 5. The investigation report (without attachments) is included in Appendix F.

### *GROUNDWATER*

Concentrations of TPH-D from grab groundwater samples ranged from 500 µg/L (P5-2) to 44,000 µg/L (P5-4). TPH-G and SVOCs were not detected in grab groundwater samples collected from the Sawmill No. 1 area.

Based on measurements taken in January 2004, depth to groundwater is approximately 5 to 11 fbg with a southwest flow direction. Concentrations of TPH-D and TPH-MO were not detected in the groundwater samples collected from Monitoring Wells MW-5.6 through MW-5.9.

#### *5.5.2 Log Pond*

### *PHASE I RECOMMENDATIONS*

- Investigate sediments in and around log pond for possible metals and cyanide impacted areas.

### *PHASE II ACTIVITIES AND RESULTS*

Sediment samples were not collected from the Log Pond based on results from sediment samples collected from ponds in Parcel 7. Water from the Log Pond comes directly from these ponds in Parcel 7. Analytical results from these pond sediments indicate no impacts (see Parcel 7, Section 5.7.5).

### 5.5.3 Area West of the Mobile Equipment Shop

#### *PHASE I RECOMMENDATIONS*

- Investigate the area west of Mobil Equipment Shop for possible buried UST and metals, petroleum hydrocarbons, VOCs, and SVOCs.

#### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted on the area west of the Mobile Equipment Shop covering an area approximately 80 feet east/west by 205 feet north/south.

Seven soil borings (P5-10 through P5-12, P5-25 through P5-27, and P5-45) were completed in the area west of the Mobile Equipment Shop. Eleven soil samples were collected at depths ranging from 1 to 5 fbg and analyzed for metals, VOCs, SVOCs, and hydrocarbons. Groundwater samples were collected from the seven borings and analyzed for metals, VOCs, SVOCs, and hydrocarbons. An additional soil boring (SB-1) was completed in the vicinity of MW-5.1 during monitoring well installation activities. One soil sample was collected from 5 fbg and was analyzed for VOCs and petroleum hydrocarbons.

Two 4-inch monitoring wells (MW-5.1 and 5.3) were installed west of the Mobile Equipment shop. One soil sample was collected and analyzed for petroleum hydrocarbons and VOCs. Groundwater samples were analyzed for petroleum hydrocarbons, VOCs, and SVOCs.

#### *GEOPHYSICAL SURVEY*

The geophysical survey conducted in the area west of the Mobile Equipment Shop consisted of an area approximately 80 feet east/west by 205 feet north/south. The primary purpose of the survey was to search for potential USTs.

Four metal detector anomalies were detected in the survey area. Three anomalies were consistent with isolated metal debris, utility pull boxes, or valve covers. Two were irregularly shaped and one was rectangular shaped. The fourth metal detector anomaly was rectangular shaped and measured approximately 4 feet by 9 feet, which appeared to be consistent with a small UST. However, the ground penetrating radar profile of this anomaly did not reflect that of an intact UST.

A backhoe was used to investigate subsurface anomalies identified during the geophysical survey. The area of the rectangular shaped anomaly was unearthed, and a metal culvert was discovered. The smaller irregularly shaped anomaly was the continuation of the culvert to the north end of the survey area. Hydrocarbon impacted soil was observed at approximately 3 fbg in pothole P5-PH1, during the geophysical anomaly assessment.

During the geophysical survey, a pile of metal debris was covering a small portion of the surveyed area. The debris prevented the inclusion of this area in the survey. Recently discovered documents suggested the presence of former UST in the unsurveyed area. G-P personnel subsequently removed the debris and a pothole was completed to a depth of 8 fbg. No UST or impacted soil was encountered.

## *SOIL*

Detectable concentrations of metals in the soil samples from the area west of the Mobile Equipment Shop are representative of those found in the greater area. Low levels of VOCs were detected slightly above the laboratory detection limits. TPH-D concentrations ranged from 9.5 mg/kg (P5-11 at 1 fbg) to 1,300 mg/kg (P5-26 at 1 fbg). TPH-G concentrations were detected in soil samples P5-26 at 1 fbg and P5-45 at 5 fbg (1.2 mg/kg). TPH-MO was detected in soil sample P5-45 at 5 fbg (250 mg/kg). Concentrations of SVOCs were not detected at or above the laboratory detection limits.

Concentrations of TPH-D (4.5 mg/kg) and TPH-MO (28 mg/kg) were detected in the soil sample collected from MW-5.3 at 5 fbg. Concentrations of cis-1,2-Dichloroethene (0.0046 mg/kg) and 1,1-Dichloroethane (0.0048 mg/kg) were detected slightly above laboratory detection limits. Other VOCs and TPH-G were not detected at or above the laboratory detection limits.

Soil sample SB-1 at 5 fbg, contained concentrations of TPH-D (3,600 mg/kg), TPH-G (84 mg/kg), and TPH-MO (11,000 mg/kg). VOCs were detected in the soil sample above laboratory detection limits.

## *GROUNDWATER*

Detectable levels of metals in groundwater are representative of levels in the greater area. TPH-D concentrations in grab groundwater samples ranged from 82 µg/L (P5-27) to 720,000 µg/L (P5-10). TPH-G concentrations ranged from 1,600 µg/L (P5-11) to 12,000 µg/L (P5-45). TPH-MO was detected in grab groundwater sample P5-45 (8,300 µg/L). VOCs were detected above the laboratory detection limits in the grab groundwater samples collected from the area west of the Mobile Equipment Shop. SVOCs were not detected at or above the laboratory detection limits.

Groundwater samples collected from monitoring wells MW-5.1 and MW-5.3 contained concentrations of VOCs above the laboratory detection limits. Concentrations of TPH-D (82 µg/L) were detected in Monitoring Well MW-5.1. Groundwater samples collected from MW-5.1 and MW-5.3 did not contain detectable concentrations of SVOCs, TPH-MO, and TPH-G.

### 5.5.4 Transformer Pad

#### *PHASE I RECOMMENDATIONS*

- Investigate areas surrounding transformer pad and overhead transformer for possible PCBs.

#### *PHASE II ACTIVITIES AND RESULTS*

Four soil samples (P5-13 through P5-16) were collected from the area surrounding the transformer pad located on Parcel 5 and analyzed for PCBs. PCBs (as Arochlor 1260) was detected in samples P5-14 at 0.5 fbg (0.035 mg/kg). PCBs were not detected at or above the laboratory detection limits in other soil samples collected from the pad area.



#### 5.5.5 Mobile Equipment Shop

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in Mobile Equipment Shop area for metals, solvents, and petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

Eight soil borings (P5-17 through P5-24) were completed in the area of the Mobile Equipment Shop. Eleven soil samples were collected at depths of 1 and 5 fbg and analyzed for metals, VOCs, SVOCs, and hydrocarbons. Groundwater samples were collected from the eight borings and analyzed for metals, VOCs, SVOCs, and hydrocarbons.

Two 4-inch monitoring wells (MW-5.2 and 5.4) were installed in the Mobile Equipment shop area. Two soil samples were collected and analyzed for petroleum hydrocarbons and VOCs. Groundwater samples were analyzed for petroleum hydrocarbons, VOCs, and SVOCs.

##### *SOIL*

Detectable concentrations of metals in the soil samples from the Mobile Equipment Shop area are representative of those found in the greater area. Low levels of VOCs and SVOCs were detected slightly above the laboratory detection limits. TPH-D concentrations ranged from 1.4 mg/kg (P5-19 at 1 fbg) to 2,700 mg/kg (P5-22 at 1 fbg). TPH-G concentrations ranged from 1.7 mg/kg (P5-24 at 1) to 600 mg/kg (P5-23 at 5 fbg).

Concentrations of TPH-D (21 mg/kg) and TPH-MO (91 mg/kg) were detected in the soil sample collected from MW-5.4 at 5 fbg. VOCs and TPH-G were not detected at or above the laboratory detection limits.

##### *GROUNDWATER*

Detectable levels of metals in groundwater are representative of levels in the greater area. TPH-D concentrations in grab groundwater samples ranged from 59 µg/L (P5-20) to 46,000 µg/L (P5-18). TPH-G concentrations were detected in grab groundwater samples collected from P5-22 (2,100 µg/L) and P5-23 (1,900 µg/L). Concentrations of VOCs and SVOCs were detected above the laboratory detection limits in the grab groundwater samples collected from the Mobile Equipment Shop area.

Groundwater samples collected from monitoring well MW-5.4 contained concentrations of MTBE (1.6 µg/L). Groundwater samples collected from MW-5.2 and MW-5.4 did not contain detectable concentrations of additional VOCs, SVOCS, TPH-D, TPH-G, or TPH-MO.

#### 5.5.6 Washdown Building

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in the Washdown Building area for petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

Three soil borings (P5-29 through P5-31) were completed in the area of the Washdown Building. Three soil and grab groundwater samples were collected and analyzed for hydrocarbons.

### *SOIL*

TPH-D concentrations ranged from 11 mg/kg (P5-29 at 1 fbg) to 40 mg/kg (P5-30 at 1 fbg). TPH-G was not detected at or above laboratory detection limits in soil samples collected from the Washdown Building area.

### *GROUNDWATER*

TPH-D concentrations ranged from 52 µg/L (P5-29) to 5,300 µg/L (P5-30). TPH-MO was detected in sample P5-30 (2,200 µg/L).

#### 5.5.7 Fuel Storage and Dispenser Building

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in the Fuel Storage and Dispenser Building area for petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

Five soil borings (P5-32 through P5-36) were completed in the area of the Fuel Storage and Dispenser Building. Five soil samples and two grab groundwater samples were collected and analyzed for petroleum hydrocarbons.

One 4-inch monitoring well (MW-5.5) was installed in the Fuel Storage and Dispenser Building. Soil and groundwater samples were collected and analyzed for petroleum hydrocarbons.

### *SOIL*

TPH-D concentrations ranged from 2.4 mg/kg (P5-33 at 5 fbg) to 190 mg/kg (P5-34 at 3 fbg) in the soil samples collected from the Fuel Storage and Dispenser Building area. TPH-G was not detected at or above laboratory detection limits.

Concentrations of TPH-D (970 mg/kg) and TPH-MO (1,100 mg/kg) were detected in the soil sample collected from Monitoring Well MW-5.5 at 5 fbg.

### *GROUNDWATER*

TPH-D concentrations were detected in grab groundwater samples P5-35 (350 µg/L) and P5-36 (72 µg/L). TPH-G was not detected in either grab groundwater sample from the Fuel Storage and Dispenser Building area.

TPH-D and TPH-G were not detected, at or above laboratory detection limits, in the groundwater sample collected from Monitoring Well MW-5.5.

#### 5.5.8 Tire Shop

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in the Tire Shop Building area for petroleum hydrocarbons.

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings (P5-37 and P5-38) were completed in the area of the Tire Shop Building. Two soil samples and one grab groundwater sample were collected and analyzed for hydrocarbons.

##### *SOIL*

TPH-D concentrations were detected in soil samples P5-37 at 1 fbg (84 mg/kg) and P5-38 at 1 fbg (99 mg/kg). TPH-G was not detected at or above laboratory detection limits.

##### *GROUNDWATER*

Concentrations of TPH-D (110,000 µg/L) and TPH-G (710 µg/L) were detected in grab groundwater sample P5-37, collected from the Tire Shop Building area.

#### 5.5.9 Gas Station Area

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in the Gas Station area for petroleum hydrocarbons.

#### *PHASE II ACTIVITIES AND RESULTS*

One soil boring (P5-39) was completed in the area of the offsite gas station, located on Main Street. One soil and groundwater sample were collected and analyzed for hydrocarbons.

##### *SOIL*

TPH-D concentration was detected in soil samples P5-39 at 1 fbg (73 mg/kg). TPH-G was not detected at or above laboratory detection limits in soil samples collected from the gas station area.

##### *GROUNDWATER*

TPH-D (320 µg/L) was detected in grab groundwater sample P5-39, collected from the gas station area. TPH-G was not detected at or above the laboratory detection limit.

#### 5.5.10 Old Shingle Mill Area

##### *PHASE I RECOMMENDATIONS*

- Investigate area east of old shingle mill, identified as “open refuse fire” on Sanborn maps, for metals and petroleum hydrocarbons.

#### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted on the Old Shingle Mill Area covering an area approximately 170 feet east/west by 90 feet north/south.

One soil boring (P5-42) was completed in the Old Shingle Mill Area. One soil sample was collected at 1 fbg and analyzed for metals, SVOCs, PCBs, and hydrocarbons.

One pothole was excavated in the area of the former Shingle Mill for the purpose of assessing subsurface soils near a suspected debris burn area. Some minor metal debris was observed in the pothole. No soil sample was collected.

### *GEOPHYSICAL SURVEY*

The geophysical survey conducted in the former Shingle Mill area consisted of an area approximately 170 feet east/west by 90 feet north/south. The survey was performed in the approximate location of the shingle mill as depicted in Historical Sanborn Maps. The purpose of the survey was to investigate zones of potential buried debris and search for abandoned fuel dispenser lines, trending south to north, emanating from Parcel 6.

One fire suppression line and three undifferentiated utility lines were identified in the survey area. The geophysical survey which occurred in Parcel 6, east of the shipping office, was performed in an effort to further trace the north-south trending lines. Section 5.6.5 discussed the results of the geophysical performed in that area.

Two north-south trending 6 to 7 feet wide metal detector anomalies were also discovered within the survey area. These anomalies appear to be subsurface railroad spurs. Additionally, a small 3 foot by 5 foot metal detector anomaly and three magnetic anomalies were discovered. The metal detector anomaly appears to be buried metal debris. The three magnetic anomalies occur alongside or between detected utility lines. These anomalies may be related to the utility lines or may represent the presence of additional buried debris.

### *SOIL*

Detectable concentrations of metals in the soil sample from the Old Shingle Mill Area are representative of those found in the greater area. TPH-D concentrations were detected in soil samples P5-42 at 1 fbg (15 mg/kg). TPH-G, PCBs, and SVOCs were not detected at or above laboratory detection limits in soil sample P5-42.

#### 5.5.11 Former Boarding House Area

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater in the Former Boarding House area for metals and petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings (P5-43 and P5-44) were completed in the area of the Former Boarding House. Two soil samples were collected and analyzed for metals and petroleum hydrocarbons.

### *SOIL*

TPH-D concentrations were detected in soil samples P5-43 at 1 fbg (65 mg/kg) and P5-44 at 1 fbg (4.8 mg/kg). TPH-G was not detected at or above laboratory detection limits in soil samples collected from the Former Boarding House area.

#### 5.5.12 Log Pond Fill Area

##### *PHASE I RECOMMENDATIONS*

- Investigate Log Pond Fill area for potential zones of buried debris and analyze soils for metals, petroleum hydrocarbons, VOCs, and SVOCs.

##### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted on the Log Pond Fill Area for the purpose of locating potential zones of buried debris and investigating subsurface anomalies detected during the geophysical survey.

Two soil borings (P5-40 and P5-41) were completed in the Log Pond Fill Area. Two soil samples were collected at 1 fbg and analyzed for metals, SVOCs, PCBs, and hydrocarbons. One grab groundwater sample was collected and analyzed for metals, SVOCs, and hydrocarbons.

Five potholes were excavated for the purpose of investigating the depth of suspected fill material and assessing subsurface anomalies detected during geophysical activities in the area southeast of the log pond. Four soil samples were collected at depths ranging from 2 to 8 fbg and analyzed for metals, petroleum hydrocarbons, VOCs, and SVOCs.

### *GEOPHYSICAL SURVEY*

The geophysical survey conducted in the log pond fill material area was performed southwest of the current log pond area. The purpose of the survey was to locate potential zones of buried debris.

Several utility lines were discovered trending through the survey area. These include two linear, north/south trending lines and a non-metallic storm drain which empties into the pond. Additionally, an irregularly curving utility line was traced through the survey area. Although the line is metallic, the non-linear nature suggests it may represent buried debris.

Two large magnetic anomalies were discovered in the survey area. The magnetic anomalies may represent scattered debris areas containing multiple buried objects. Several small metal detector anomalies were also discovered throughout the survey area. These anomalies probably represent shallow buried debris.

A backhoe was used to investigate subsurface anomalies identified during the geophysical survey. Fill material depths ranged from 2 fbg to 14 fbg. Some minor wood and metal debris was observed in the potholes.

### *SOIL*

Detectable concentrations of metals in the soil samples from the Log Pond Fill Area are representative of those found in the greater area. TPH-D concentrations were detected in soil samples P5-40 at 1 fbg (6.4 mg/kg) and P5-41 at 1 fbg (7.4 mg/kg). TPH-G, PCBs, and SVOCs were not detected at or above the laboratory detection limits.

VOCs and SVOCs were detected above the laboratory detection limits in soil samples collected during potholing activities. TPH-D concentrations ranged from 16 mg/kg (P5-TP5 at 8 fbg) to 2,100 mg/kg (P5-TP2 at 6 fbg). TPH-G concentrations were detected in samples P5-TP2 at 6 fbg (42 mg/kg) and P5-TP3 at 6 fbg (1.2 mg/kg). TPH-MO concentrations ranged from 68 mg/kg (P5-TP5 at 8) to 990 mg/kg (P5-TP3 at 2 fbg).

## *GROUNDWATER*

TPH-D (350 µg/L) was detected in grab groundwater sample P5-41, collected from the Log Pond Fill Area. TPH-G and SVOCs were not detected at or above the laboratory detection limit.

### 5.5.13 Discussion

#### *SOIL*

Geophysical surveys were conducted in the area west of the Mobile Equipment Shop, the Old Shingle Mill Area, and the Log Pond Fill Area in order to assess potential USTs, buried debris, and delineate fill material. Subsurface anomalies consistent with areas of buried debris were identified in the Log Pond Fill Material area and the Old Shingle Mill Area. No USTs were uncovered upon further investigation of anomalies west of the Mobile Equipment Shop.

Soil samples collected in Parcel 5 were not impacted with metals.

Hydrocarbon impacted soil and liquid phase hydrocarbons were observed in the Sawmill No. 1 area during potholing activities. Elevated levels of TPH-D and TPH-MO were detected in the soil sample collected from the potholes. Nearby soil and groundwater samples show the hydrocarbon impacted soil and groundwater does not extend beyond the Sawmill No. 1 area to the north, south, west, and east.

Hydrocarbon and VOCs impacted soils exist at the area west of the Mobile Equipment Shop. During the geophysical anomaly assessment hydrocarbon impacted soil was observed in pothole P5-PH1, at approximately 3 fbg. The maximum concentrations of hydrocarbons and VOCs are located along the underground lines to the Fuel Storage and Dispenser Building. Nearby samples show elevated levels do not extend to the south, west, and east.

Results indicated soils under the northern portion of the Mobile Equipment shop are impacted with TPH-D, TPH-MO, and VOCs. Maximum concentrations were detected under the northern portion of the building and extend westward to the northern portion of the area west of the Mobile Equipment Shop. Hydrocarbon levels in soils decrease in samples collected under the southern portion of the Mobile Equipment Shop. Concentrations of VOCs were not detected at or above the laboratory detection limit under the southern portion of the building.

Elevated TPH-D and TPH-MO concentrations in soil sample MW-5.5 at 5 fbg, collected west of the Fuel Storage and Dispenser Building indicates impacted soils. Nearby soil samples show elevated levels do not extend to the north, south, or east under the building. Non-detectable hydrocarbon concentrations in groundwater samples collected from MW-5.5 during the January 2004 sampling event do not indicate groundwater impacts.

Elevated TPH-D concentrations are present in shallow soils in the vicinity of the Tire Shop.

TPH-D concentrations were detected in shallow soils in the gas station area. However, groundwater samples collected from Monitoring Well MW-5.2, downgradient of the gas station area, do not indicate groundwater impacts.

Detectable concentrations of hydrocarbon, VOCs, and SVOCs were found in soils at the Log Pond Fill Area. Concentrations of hydrocarbons increased with depth at samples P5-TP2 and P5-TP3. Concentrations of VOCs, SVOCs, and hydrocarbons decrease in nearby samples to the east, west and south.

#### *GROUNDWATER*

Groundwater samples collected in Parcel 5 were not impacted with metals. Based on data collected in January 2004, depth to groundwater in Parcel 5 ranged from 1 to 11 fbg with a flow direction toward the southwest.

Groundwater in upgradient monitoring well (MW-5.1) at the area west of the Mobile Equipment Shop indicates detectable levels of hydrocarbons. Non-detectable hydrocarbon concentrations in MW-5.3 and MW-5.4 (downgradient) indicate groundwater is not impacted by hydrocarbon soil impacts at the Mobile Equipment Shop or the area west of the Mobile Equipment Shop. Elevated levels of TCE and other VOCs were detected in upgradient well MW-5.1. Concentrations of VOCs were also detected slightly above laboratory detection limits in downgradient well MW-5.3.

Elevated TPH-D concentrations were detected in grab groundwater samples collected southwest of the Tire Shop Building (P5-37).

Non-detectable concentrations of hydrocarbons in groundwater samples collected from Monitoring Wells MW-5.6 through MW-5.9 indicate no hydrocarbon impacts to groundwater east, west, north and south of the Sawmill No. 1 concrete foundation area. Liquid phase hydrocarbons and elevated TPH-D concentrations in a grab groundwater sample were detected underneath the foundation.

#### 5.5.14 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- No further action required at the Transformer Pad, Washdown Building, Gas Station Area, and the Former Boarding House Area.
- Remove concrete and wood foundation in Sawmill No. 1 area and excavate impacted soils.
- Excavate and remove impacted soils in the area to the west of the Mobile Equipment Shop in the vicinity of P5-PH1 and P5-25 through P5-27.
- Excavate soils in vicinity of P5-22, P5-23, and P5-24.
- Further assess soil and groundwater southwest of the Tire Shop, west of the Fuel Storage and Dispenser Building, and the Log Pond Fill Material Area.
- Continue quarterly monitoring and sampling of existing monitoring wells for one year.

## 5.6 Parcel 6

Seven areas of concern have been identified in Parcel 6. They include transformers (areas where transformers were located or previously located), Hazardous Waste Storage Area (within Planer Mill No. 2), Planer Mill No. 2, Shipping Office (Former Vehicle Maintenance Shop), Former AST, Fill Area (west of Planer Mill No. 2), and Former Cooling Towers. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 6 for each area of concern. A discussion of findings and recommendations are presented in Sections 5.6.8 and 5.6.9, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 13. The Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11.

### 5.6.1 Transformers

#### *PHASE I RECOMMENDATIONS*

- Investigate areas surrounding transformer pads, overhead transformers, and locations where transformers were previously stored for possible PCBs. Areas include the Hazardous Waste Storage Area, central area of Planer Mill No. 2, Shipping Office, location south of the Shipping Office.

#### *PHASE II ACTIVITIES AND RESULTS*

Twelve surface soil samples were collected and analyzed for PCBs. PCBs as Aroclor 1248 were detected in soil sample P6-1 at the Hazardous Waste Storage Area at 0.089 mg/kg, slightly above the laboratory detection limit of 0.012 mg/kg. PCBs were not detected in other soil samples collected in Parcel 6.

### 5.6.2 Hazardous Waste Storage Area

#### *PHASE I RECOMMENDATIONS*

- Investigate former hazardous waste storage area in the northwest corner of Planer Mill No. 2 for petroleum hydrocarbons, solvents, and PCBs.

#### *PHASE II ACTIVITIES*

Two soil borings were completed in the Hazardous Waste Storage Area. Soil samples were collected at depths ranging from 0.5 fbg to 3 fbg and analyzed for hydrocarbons, VOCs, SVOCs, and PCBs. One grab groundwater sample was collected and analyzed for hydrocarbons, VOCs, and SVOCs.

#### *SOIL*

TPH-D was detected ranging from 52 mg/kg to 870 mg/kg (P6-2 at 0.5 fbg). TPH-G was not detected. VOCs were detected slightly above laboratory detection limits in P6-1 and P6-2 at 0.5 fbg. SVOCs were not detected. PCBs were detected as Aroclor 1248 in P6-1 at 0.5 fbg slightly above laboratory detection limits.



#### *GROUNDWATER*

TPH-D was detected in P6-1 at 130 µg/L, however TPH-D was not detected with SGCU on the sample groundwater sample. TPH-G, VOCs, and SVOCs were not detected.

#### *5.6.3 Planer Mill No. 2*

##### *PHASE I RECOMMENDATIONS*

- Investigate soils and groundwater at locations where petroleum hydrocarbons were stored (central area of Planer Mill No. 2) and at surface staining (outside Planer Mill No. 2).

##### *PHASE II ACTIVITIES*

Eight soil borings were completed and soil samples were collected at depths ranging from 0.5 fbg to 3 fbg and analyzed for hydrocarbons, VOCs, and PCBs. Four grab groundwater samples were collected and analyzed for hydrocarbons.

#### *SOIL*

TPH-D was detected in each sample ranging from 1.2 mg/kg to 180 mg/kg. TPH-G was not detected. Three samples were analyzed for VOCs. VOCs were detected in two samples slightly above laboratory limits. PCBs were not detected.

#### *GROUNDWATER*

TPH-D was detected in each of the three grab groundwater samples ranging from 86 µg/L to 330 µg/L. TPH-D with SGCU in P6-7 resulted as not detectable (TPH-D w/o SGCU = 86 µg/L).

#### *5.6.4 Shipping Office*

##### *PHASE I RECOMMENDATIONS*

- Investigate the Shipping Office area (former vehicle maintenance shop location) for possible petroleum hydrocarbons.

##### *PHASE II ACTIVITIES*

A subsurface geophysical survey was completed adjacent to the Shipping Office. The area surveyed measures approximately 120-feet by 160-feet.

Three soil borings were completed in the area of the former vehicle maintenance shop. Soil samples were collected at depths ranging from 0.5 to 3 fbg and analyzed for metals, hydrocarbons, VOCs, SVOCs, and PCBs. Two groundwater samples were collected and analyzed for metals, hydrocarbons, VOCs, and SVOCs.

#### *GEOPHYSICAL SURVEY*

The area surveyed adjacent to the Shipping Office measures approximately 120-feet by 160-feet. Undifferentiated utilities traverse the survey area. Two adjacent anomalies were identified north of the Shipping Office, one of which indicated the presence of a pipe segment. The source of the other anomaly (approximately 6 feet by 12 feet) is ambiguous and could not be determined.

### *SOIL*

Detectable levels of metals do not indicate impacts to soil. TPH-D was detected in two of the three borings ranging from 4.0 mg/kg to 1,200 mg/kg (P6-12 at 1 fbg). TPH-G was detected at 7.3 mg/kg in soil sample P6-12 at 1 fbg. VOCs were detected slightly above laboratory detection limits. SVOCs and PCBs were not detected.

### *GROUNDWATER*

Detectable levels of metals do not indicate impacts to groundwater. TPH-D (without SGCU) was detected at 150 µg/L in P6-11 and 280 µg/L in P6-12. VOCs and SVOCs were not detected.

#### 5.6.5 Former AST

##### *PHASE I RECOMMENDATIONS*

- Investigate the Former diesel AST area for possible petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

A subsurface geophysical survey was completed at the former AST area. The area surveyed (east of the Shipping Office) measures approximately 150-feet by 150-feet.

Two borings were completed in estimated areas where a former diesel AST was located. Soil samples were collected at 1 fbg. One groundwater sample was collected. Soil and groundwater samples were analyzed for hydrocarbons.

TPH-D was detected in soil at 1,100 mg/kg (P6-14 at 1 fbg) and 9.0 mg/kg (P6-15 at 1 fbg). TPH-D (without SGCU) was detected in groundwater at 780 µg/L. TPH-G was not detected in soil or groundwater samples.

### *GEOPHYSICAL SURVEY*

The area surveyed east of the Shipping Office measures approximately 150-feet by 150-feet. Undifferentiated utilities were located within the area. Two metal detector anomalies were identified in the northwest area of the survey location and suspected to be subsurface railroad spurs. Another anomaly was detected in the south, which may represent a piece of pipe or miscellaneous debris. A large terrain conductivity anomaly was identified in the middle of the survey area and may represent a backfilled area, higher soil moisture content, or former building foundation footprint.

#### 5.6.6 Fill Area

##### *PHASE I RECOMMENDATIONS*

- No Phase I recommendations, however, as a result of reviewing aerial photos, this area was determined to be fill and warranted further investigation.

##### *PHASE II ACTIVITIES AND RESULTS*

Eight potholes were excavated for the purpose of investigating depth of suspected fill material (west of Planer No. 2). Fill material depths ranged from 10 fbg to 13 fbg. Some minor wood and metal debris were observed in the potholes. Four soil samples were collected at the base of the fill material and analyzed for metals, hydrocarbons, and SVOCs.

TPH-D concentrations range from 7.7 mg/kg to 310 mg/kg. TPH-MO concentrations range from 24 mg/kg to 250 mg/kg. SVOCs were not detected.

#### 5.6.7 Former Cooling Towers

##### *PHASE I RECOMMENDATIONS*

- No Phase I recommendations, however investigation of chromium was completed per request of the RWQCB.

##### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings were completed at the Former Cooling Towers location. Soil samples were collected at 0.5 and 5 fbg and analyzed for chromium and hexavalent chromium. Chromium was detected at 13 mg/kg to 15 mg/kg. Hexavalent chromium was not detected.

#### 5.6.8 Discussion

##### *SOIL*

Soil samples collected in Parcel 6 were not impacted with metals, VOCs, SVOCs, or PCBs. Elevated levels of TPH-D indicate hydrocarbon impacts to the shallow soil at the Shipping Office.

Elevated TPH-D was found in one sample in shallow soil in the northwest corner of Planer No. 2 at the Hazardous Waste Storage Area (P6-2). Results in a nearby soil sample (P6-1) show low TPH-D concentrations in soil and non-detectable concentrations in groundwater (with SGCU). Shallow soil at P6-2 is not a source of impacts to groundwater.

Detectable levels of hydrocarbons were found in soil samples collected in the fill area (west area of Parcel 6). Results indicate elevated levels of hydrocarbons (310 mg/kg) at 8 fbg in one sample (P6-TP8).

Soil results from borings at the Former Cooling Towers location do not indicate impacts to soil.

##### *GROUNDWATER*

Groundwater samples collected in Parcel 6 were not impacted with metals, VOCs, or SVOCs. Detectable levels of hydrocarbons were found in groundwater samples collected at the Shipping Office.

#### 5.6.9 Recommendations

Based on the results of the Phase II assessment in Parcel 6, TRC recommends the following:

- No further action at the transformers, Hazardous Waste Storage Area, Planer Mill No. 2, and Former Cooling Towers.
- Further shallow soil assessment for TPH-D at the Shipping Office and the former AST location (east of the Shipping Office).
- Install one monitoring well at the former AST location to assess TPH-D concentrations in groundwater.

- Install one monitoring well at the Fill Area at P6-PH8 to assess TPH-D and TPH-MO impacts to groundwater.
- Further investigate source of geophysical anomaly northwest of the Shipping Office.

## 5.7 Parcel 7

Seven areas of concern have been identified in Parcel 7. They include transformers (areas where transformers were located or previously located), Hazardous Materials Storage Area, Sawmill No. 2, TP Burner & Fuel ASTs, South Ponds, Sediment Drying Area, Existing Monitoring Wells, and Stockpile. This section presents the Phase I recommendations and Phase II activities and results associated with Parcel 7 for each area of concern. A discussion of findings and recommendations are presented in Sections 5.7.9 and 5.7.10, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 14. The Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

### 5.7.1 Transformers

#### *PHASE I RECOMMENDATIONS*

- Investigate the surface soil in the areas near transformers and transformer pads north of the Sawmill No. 2 and west of Sawmill No. 2 for presence of PCBs.

#### *PHASE II ACTIVITIES AND RESULTS*

Seven surface samples were collected and analyzed for PCBs. PCBs were not detected in soil samples collect in Parcel 7.

### 5.7.2 Hazardous Materials Storage Area

#### *PHASE I RECOMMENDATIONS*

- Investigate the hazardous materials storage areas within Sawmill No. 2 building for presence of solvents, PCBs, and TPH as diesel.

#### *PHASE II ACTIVITIES AND RESULTS*

Two soil borings were completed at the Hazardous Materials Storage Area at depths ranging from 0.5 fbg to 3 fbg and analyzed for hydrocarbons, VOCs, SVOCs, and PCBs.

TPH-D was detected in soil samples ranging from 20 mg/kg to 210 mg/kg (P7-1 at 0.5 fbg). TPH-G, VOCs, SVOCs, and PCBs were not detected.

### 5.7.3 Sawmill No. 2

#### *PHASE I RECOMMENDATIONS*

- Investigate the soil at Sawmill No. 2 building for presence of solvents, PCBs, and TPH as diesel.

## *PHASE II ACTIVITIES*

One 4-inch monitoring well (MW-7.1 to 15 fbg) was installed in the west area of Sawmill No. 2, near P7-4. A soil sample was collected at 5 fbg and groundwater was collected and analyzed for TPH-D.

Six soil borings were completed at Sawmill No. 2 (not including investigation at the Hazardous Materials Storage area within Sawmill No. 2). Soil samples were collected at depths ranging from 0.5 fbg to 3 fbg and analyzed for hydrocarbons, VOCs, SVOCs, and PCBs. Two grab groundwater samples were collected and analyzed for hydrocarbons, VOCs, and SVOCs.

## *SOIL*

Detectable levels of TPH-D in soil borings without SGCU ranged from 5.1 mg/kg to 6,800 mg/kg. One soil sample was run with SGCU. TPH-D in soil sample P7-5 at 0.5 fbg was 1,400 mg/kg without SGCU and 1.3 mg/kg with SGCU. The highest concentrations of TPH-D were located in the west area of the Sawmill at 6,800 mg/kg (P7-4 at 0.5 fbg), 3,800 mg/kg (P7-3 at 3 fbg), and 1,400 mg/kg (P7-5 at 0.5 fbg). Samples P7-3 and P7-4 are located near hydraulic units and P7-5 is located at an oil storage area. TPH-G was detected slightly above detection limits in P7-3. Selected VOCs were detected in soil borings slightly above laboratory detection limits. SVOCs and PCBs were not detected.

TPH-D and TPH-MO were detected in MW-7.1 at 5 fbg at 58 mg/kg and 120 mg/kg, respectively.

## *GROUNDWATER*

TPH-D (without SGCU) was detected in each of the two grab groundwater samples collected from borings at 1,300 µg/L (P7-4) and 61 µg/L (P7-6). TPH-G, VOCs, and SVOCs were not detected. TPH-D was not detected in groundwater collected from MW-7.1 (located approximately at P7-4). Based on measurements collected in January 2004, depth to groundwater is approximately 6 feet.

### 5.7.4 TP Burner & Fuel ASTs

## *PHASE I RECOMMENDATIONS*

- Investigate the soil in the former diesel AST and TP burner area between the Sawmill and Sorter Building.

## *PHASE II ACTIVITIES AND RESULTS*

A subsurface geophysical survey was conducted at the TP Burner & Fuel ASTs location. Four soil samples were collected at the TP Burner & Fuel ASTs location at depths ranging from 0.5 fbg to 3 fbg and analyzed for hydrocarbons, VOCs, SVOCs, and PCBs. One groundwater sample was collected and analyzed for hydrocarbons and SVOCs.

Two surface samples were collected at 0.5 fbg from the Truck Scale Ramps (east of Sawmill No. 2) and one surface sample was collected from the Mill Ramp (south of Sawmill No. 2) for the purpose of profiling potential fill material.

### *GEOPHYSICAL SURVEY*

The area surveyed in Parcel 7 is approximately 80-feet by 80-feet located at Sawmill No.2 between the sorter building and the main building. Several metal detector anomalies were identified, some of which were determined to be reinforced concrete. Other small anomalies were not identified. A circular unknown anomaly 12- to 15-feet in diameter was identified, which could be an AST foundation.

### *SOIL*

TPH-D without SGCU was detected in soil samples ranging from 1.8 mg/kg to 1,800 mg/kg (P7-10 at 0.5 fbg). One sample, P7-11 at 0.5 fbg was analyzed for TPH-D with and without SGCU. TPH-D was detected in P7-11 at 0.5 fbg at 200 mg/kg without SGCU and 0.2 mg/kg with SGCU. TPH-G, VOCs, SVOCs, and PCBs were not detected in soil samples collected at the TP Burner & Fuel ASTs location.

TPH-D and TPH-MO were detected in soil at MW-7.1 at 5 fbg at 58 mg/kg and 120 mg/kg, respectively.

Low levels of TPH-D and TPH-MO were detected in soil samples from the Truck Ramp 1 (4.1 mg/kg and 16 mg/kg, respectively), Truck Ramp 2 (2.4 mg/kg and 7.7 mg/kg, respectively), and the Mill Ramp (4.9 mg/kg and 14 mg/kg, respectively). VOCs were not detected. SVOCs were detected slightly above detection limits.

### *GROUNDWATER*

TPH-D was detected in P7-10 at 82 µg/L. SVOCs were not detected.

#### 5.7.5 South Ponds

##### *PHASE I RECOMMENDATIONS*

- Collect sediment samples from the ponds to evaluate the presence of heavy metals, polynuclear aromatic hydrocarbons (PAHs), and cyanide.

##### *PHASE II ACTIVITIES AND RESULTS*

Initial Phase II sampling activities yielded no SVOCs, PAHs, or metal impacts onsite. Further assessment of industrial processes indicated the potential for sediments to be impacted with cyanide. Subsequently the sampling program was changed to only test for cyanide.

Eight soil samples were collected in three of the four South Ponds in the southern area of Parcel 7 at depths ranging from surface to 6 fbg and analyzed for total cyanide (SP1 through SP3 sample identifications). Cyanide was not detected.

#### 5.7.6 Sediment Drying Area

##### *PHASE I RECOMMENDATIONS*

- Investigate surface soils at the sediment drying area.

#### *PHASE II ACTIVITIES AND RESULTS*

Four soil samples were collected at the sediment drying area at 0.5 fbg and analyzed for metals and SVOCs. Two samples were collected at the ash pile and below the ash pile at the sediment drying area and analyzed for total cyanide. Detectable levels of metals represent regional levels. SVOCs and cyanide were not detected.

##### 5.7.7 Existing Monitoring Wells

#### *PHASE I RECOMMENDATIONS*

- Abandon the wells observed on the western side of the wooded areas.

#### *PHASE II ACTIVITIES AND RESULTS*

Three existing groundwater wells (FB-1 through FB-3) were identified in the wooded area along the east side of Parcel 7. Groundwater samples were collected and analyzed for TPH-D and VOCs, which were not detected. Based on measurements collected in January 2004, depth to water ranged from 5 to 10 fbg. The total depth of FB-1 could not be determined during the field visit. The total depths of FB-2 and FB-3 are approximately 48 feet and 108 feet, respectively.

##### 5.7.8 Stockpile

#### *PHASE I RECOMMENDATIONS*

- Collect soil samples from the stockpile west of Sawmill No. 2.

#### *PHASE II ACTIVITIES AND RESULTS*

Four samples were collected from the soil stockpile in Parcel 7 west of Sawmill No. 2 and composited into one sample (P7-32). The sample was analyzed for metals and hydrocarbons. TPH-D was detected at 2,100 mg/kg. TPH-G was not detected. Detectable levels of metals do not indicate impacts.

##### 5.7.9 Discussion

#### *SOIL*

Soil samples collected in Parcel 7 were not impacted with metals, VOCs, SVOCs, or PCBs. Assessment activities indicate hydrocarbon impacts to soil are present in the west area of Parcel 7, west of the Saw Mill. Elevated levels of hydrocarbons were detected in shallow soil (0-3 fbg).

Elevated levels of TPH-D were detected in selected soil samples collected at the TP Burner & Fuel ASTs. The one sample analyzed with SGCU indicates a significantly lower result as compared to the analysis without SGCU.

TPH-D was detected at an elevated level in the composite sample of the stockpile located west of Sawmill No. 2.

Results indicate soil at Truck Ramp 1, Truck Ramp 2, and the Mill Ramp are not impacted and are suitable for fill material.

Phase II assessment activities do not indicate impacted soils in other areas of Parcel 7.

#### *GROUNDWATER*

Groundwater samples collected in Parcel 7 were not impacted with hydrocarbons, metals, VOCs, or SVOCs.

##### **5.7.9 Recommendations**

Based on the results of the Phase II assessment in Parcel 7, TRC recommends the following:

- No further action at the transformers, Hazardous Materials Storage Area, South Ponds, and Sediment Drying Area.
- Excavate soil at P7-3 (to 3 fbg minimum) and P7-4 and P7-5 (to 1 fbg minimum) outside Sawmill No. 2.
- Further soil assessment at the TP Burner & Fuels ASTs location at P7-10 for TPH-D (with SGCU).
- Remove the soil stockpile west of Sawmill No. 2 via offsite transportation and disposal (or complete onsite treatment).
- Abandon existing groundwater wells FB-1, FB-2, and FB-3 in the east area of Parcel 7.
- Continue quarterly groundwater monitoring and sampling of MW-7.1 for one year.

## **5.8 Parcel 8**

Based on the Phase I Assessment, four areas of interest have been identified in Parcel 8. They include: the Airstrip Fueling Area, the Disturbance along the Coastal Region, the Clinker Piles, and the Sheep Barn. This section presents the Phase I recommendations and Phase II activities and results with Parcel 8 for each area of interest. A discussion of findings and recommendations are presented in Sections 5.8.5 and 5.8.6, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 15. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

### **5.8.1 Airstrip Fueling Area**

#### *PHASE I RECOMMENDATIONS*

- Investigate the airstrip for metals, TPH as diesel, and TPH as motor oil. The investigation can be performed by trenching through the identified areas and collecting representative soil samples while logging visual findings.
- Conduct a geophysical survey of the Airstrip Fueling Area to investigate the presence of an underground storage tank.



### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted on the Airstrip Landing Area covering an area approximately 60 feet east/west by 150 feet north/south.

One soil boring (P8-1) was completed in the Airstrip Landing Area. One soil sample was collected and analyzed for hydrocarbons.

### *GEOPHYSICAL SURVEY*

The survey area for the former fueling area, located at the southeast end of the landing strip, measured approximately 60 feet east/west by 150 feet north/south. Two very small metal detector anomalies were detected in the survey area. The anomalies probably represent small buried metal debris.

### *SOIL*

TPH-D was detected in soil samples P8-1 at 1 fbg (8.6 mg/kg). TPH-G was not detected at or above laboratory detection limits in soil sample collected from the Airstrip Fueling Area.

### 5.8.2 Disturbance Along Coastal Area

#### *PHASE I RECOMMENDATIONS*

- Investigate the disturbed areas along the coast (as identified in historical aerial photographs) for metals, TPH as diesel, and TPH as motor oil. The investigation can be performed by trenching through the identified areas and collecting representative soil samples while logging visual findings.

### *PHASE II ACTIVITIES AND RESULTS*

Six potholes (P8-T1, P8-T2, and P8-PH1 through P8-PH3) were excavated for the purpose of investigating suspected buried debris and/or fill material in the Coastal Disturbance Area. The potholes were completed to depths ranging from 4 to 10 fbg. Buried debris and fill material was encountered in pothole P8-T2 at approximately 5 fbg. Buried debris and fill material was not encountered in potholes completed to the south, east, and west. Two soil samples were collected and analyzed for metals, petroleum hydrocarbons, and PCBs.

### *SOIL*

Detectable concentrations of metals in the pothole soil samples from the Coastal Disturbance Area are representative of those found in the greater area. TPH-D concentrations ranged from 1.1 mg/kg (P8-PH1 at 4 fbg) to 570 mg/kg (P8-T2 at 10 fbg). TPH-G and PCBs were not detected at or above laboratory detection limits.

### 5.8.3 Clinker Piles

#### *PHASE I RECOMMENDATIONS*

- Investigate the Clinker Piles for metals, TPH as diesel, and TPH as motor oil. The investigation can be performed by trenching through the identified areas and collecting representative soil samples while logging visual findings.

#### *PHASE II ACTIVITIES AND RESULTS*

One pothole (P8-PH6) was excavated in the clinker pile area. The pothole was completed to a depth of 10 fbg. One soil sample was collected and analyzed for metals and petroleum hydrocarbons.

#### *SOIL*

Detectable concentrations of metals in the pothole soil sample from the Clinker Pile Area are representative of those found in the greater area. TPH-D was detected in soil sample P8-PH6 at 1 fbg (94 mg/kg). TPH-G was not detected at or above laboratory detection limits.

#### 5.8.4 Sheep Barn

#### *PHASE I RECOMMENDATIONS*

- Conduct a geophysical survey of the Sheep Barn Area to investigate the presence of alleged buried transformers. Should the geophysical survey identify subsurface anomalies, they will be investigated further through trenching activities.

#### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted on the Sheep Barn Area covering an area approximately 250 feet east/west by 400 feet north/south area.

Three potholes (P8-T3, P8-PH4, and P8-PH5) were completed in the Sheep Barn Area. Three soil samples were collected and analyzed for metals, hydrocarbons, and PCBs.

#### *GEOPHYSICAL SURVEY*

The geophysical survey conducted at the former sheep barn location consisted of a 250 feet east/west by 400 feet north/south area. The primary purpose of the survey was to search for an area where transformers were allegedly buried. No anomalies were detected consistent with the expected response of buried transformers.

An undifferentiated utility line was detected, running northwest/southeast. The utility appears to be in two segments with an approximately 20 foot gap in the middle. On the west end of the utility line, a small metal detector anomaly was detected, which is typical of small buried metal debris.

#### *SOILS*

Detectable concentrations of metals in the pothole soil samples from the Sheep Barn Area are representative of those found in the greater area. TPH-D concentrations ranged from 3.0 mg/kg (P8-PH4 at 5 fbg) to 4 mg/kg (P8-T3 at 2 fbg). TPH-G and PCBs were not detected at or above laboratory detection limits.

#### 5.8.5 Discussion

#### *SOIL*

Geophysical surveys were conducted in the Airstrip Fueling Area and Sheep Barn Area in order to locate potentially buried debris and/or USTs. The survey results did not indicate any subsurface anomalies which were consistent with areas of buried debris or USTs.

Soil samples collected in Parcel 8 were not impacted with metals or PCBs. Low levels of TPH-D exist in the shallow soil near the Airstrip Fueling Area, the Sheep Barn Area, and the Clinker Piles.

Elevated levels of TPH-D were detected in soil sample P8-T2 at 10 fbg, collected near the Coastal Disturbance Area. However, nearby samples show elevated levels do not extend to the north, south and west.

#### 5.8.6 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- Collect a grab groundwater sample at P8-T2 and analyze for TPH-D with SGCU.

### 5.9 **Parcel 9**

Based on the Phase I Assessment, four areas of interest have been identified in Parcel 9. They include: the Overhead Transformer, the Nursery Area, and the Scrap Metal Area. This section presents the Phase I recommendations and Phase II activities and results with Parcel 9 for each area of interest. A discussion of findings and recommendations are presented in Sections 5.9.4 and 5.9.5, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 16. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

#### 5.9.1 Overhead Transformer

##### *PHASE I RECOMMENDATIONS*

- Investigate areas surrounding the overhead transformer for possible PCBs.

##### *PHASE II ACTIVITIES AND RESULTS*

One soil sample (P9-16) was collected in the vicinity of the overhead transformer located on Parcel 9 and analyzed for PCBs. PCBs were not detected at or above the laboratory detection limits in the soil sample collected from the overhead transformer area.

#### 5.9.2 Nursery Area

##### *PHASE I RECOMMENDATIONS*

- Investigate under the flooring and around the structures of the following Tree Nursery Areas for insecticides, herbicides, and fungicides:
  - The five greenhouses
  - The main packing shed
  - Chemical storage shed
  - Chemical mixing shed

- Water filtration and purifier system
- Investigate the pump house area for petroleum hydrocarbons.

#### *PHASE II ACTIVITIES AND RESULTS*

Nine soil borings (P9-1 through P9-11) were completed to a depth of 3 fbg in the area of the Nursery. Twenty-one soil samples were collected and analyzed for pesticides. One soil sample, collected near the pump house (P9-7), was also analyzed for petroleum hydrocarbons.

A list of pesticides, fungicides, and herbicides utilized by G-P Nursery Operations was provided to North Coast Laboratories LTD (NCL). From the list, an analysis plan was developed in order to detect potential constituents of concern, which are byproducts of the reported products. Three grab groundwater samples (P9-17 through P9-19) were collected and analyzed for the following constituents of concern:

- Iprodione
- Metalaxyl
- Malathion
- Tebuthiuron
- Atrazine
- Glyphosate

#### *SOIL*

The initial sampling and analysis plan for Parcel 9 did not include the pesticide, fungicide, and herbicide constituents recommended by NCL. Initial soil assessment samples were analyzed for organochlorine pesticides using EPA Method 8081A. The following organochlorine pesticides were detected: 4,4-DDT in soil sample P9-2 at 3 fbg (0.0057 mg/kg), Aldrin in soil sample P9-2 at 1 fbg (0.0033 mg/kg), and Endosulfan I in soil sample P9-1 at 1 fbg (0.002mg/kg). Other organochlorine pesticides analyzed under EPA Method 8081A were not detected at or above the laboratory detection limit in soil samples collected from the Nursery Area. TPH-D and TPH-G were not detected, at or above laboratory detection limit in soil sample P9-7.

#### *GROUNDWATER*

Concentrations of Atrazine were detected in grab groundwater samples P9-18 (0.77 µg/L) and P9-19 (4.9 µg/L). Tebuthiuron was detected in grab groundwater sample P9-17 (4.6 µg/L). TPH-D and TPH-G were not detected, at or above laboratory detection limit in grab groundwater sample P9-7 collected near the pump house.

#### *5.9.3 Scrap Metal Area*

##### *PHASE I RECOMMENDATIONS*

- Investigate the Scrap Metal Area for metals, solvents, and petroleum hydrocarbons.

##### *PHASE II ACTIVITIES AND RESULTS*

A geophysical survey was conducted in the Scrap Metal Area covering an area approximately 180 feet east/west by 60 feet north/south.

Four soil borings (P9-12 through P9-15) were completed in the Scrap Metal Area. Four soil samples were collected at a depth of 1 fbg and analyzed for metals, VOCs, and hydrocarbons. One grab groundwater sample (P9-12) was collected and analyzed for metals, VOCs, and petroleum hydrocarbons.

#### *GEOPHYSICAL SURVEY*

The geophysical survey area conducted in the Scrap Metal Area consisted of an area approximately 180 feet east/west by 60 feet north/south. A small 2 foot by 2 foot metal detector anomaly was detected which probably represents buried metal debris. Additionally, an undifferentiated utility line was discovered, in the survey area. A terrain conductivity anomaly was detected near a bend in the utility line. The anomaly, an approximately 10 to 15 foot elliptical area, probably represents an area of fill material.

#### *SOIL*

Detectable concentrations of metals in the soil samples from the Scrap Metal Area are representative of those found in the greater area. TPH-D concentrations ranged from 2.7 mg/kg (P9-12 at 1 fbg) to 26 mg/kg (P9-15 at 1 fbg). TPH-G and VOCs were not detected at or above laboratory detection limits.

#### *GROUNDWATER*

Detectable levels of metals in grab groundwater sample P9-12 are representative of levels in the greater area. TPH-D, TPH-G, and VOCs were not detected, at or above laboratory detection limits.

#### 5.9.4 Discussion

##### *SOIL*

A geophysical survey was conducted in the former scrap yard area in order to locate potentially buried debris. Survey results did not indicated any area of buried debris; however, a probable area of fill material was discovered.

Soil samples collected in Parcel 9 were not impacted with metals, VOCs and PCBs. Low levels of organochlorine pesticides were detected in shallow soil samples. Low levels of TPH-D exist in the shallow soil near the former scrap metal area and pump house area.

##### *GROUNDWATER*

Groundwater samples collected in Parcel 9 is not impacted with metals, hydrocarbons, or VOCs. Atrazine and tebuthiuron were detected in grab groundwater samples from the Nursery Area. Atrazine and tebuthiuron impacts to groundwater and soil are not fully characterized in the Nursery Area.

#### 5.9.5 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- No further action required at the Overhead Transformer and Scrap Metal Area.

- Soil and groundwater from the Nursery Area should be further assessed for the presence of atrazine and tebuthiuron.

## **5.10 Parcel 10**

Based on the Phase I Assessment, two areas of interest have been identified in Parcel 10. They include the Fill Material Area and the Clinker and Ash/Scrap Piles. This section presents the Phase I recommendations and Phase II activities and results with Parcel 10 for each area of interest. A discussion of findings and recommendations are presented in Sections 5.10.3 and 5.10.4, respectively.

Sampling locations and investigation activities are presented in Figures 2 and 17. This Site assessment chronology, including detailed sampling locations, is included in Table 1. Analytical data related to soil assessment is included in Tables 2 through 7. Grab groundwater analytical data is included in Tables 8 through 11. Groundwater data from the monitoring wells is included in Table 12.

### **5.10.1 Fill Material Area**

#### ***PHASE I RECOMMENDATIONS***

- Investigate the Fill Material Area for metals, TPH as diesel and motor oil, and PCBs. The investigation can be performed by trenching through the identified areas and collecting representative soil samples while logging visual findings.

#### ***PHASE II ACTIVITIES AND RESULTS***

Twenty-seven potholes (P10-PH1 and P10-PH3 through P10-PH28) were excavated for the purpose of delineating the fill material and investigating suspected buried debris in an area identified as a coastal disturbance area in historical photographs. Fill material depths ranged from 5 fbg to 12 fbg. Some minor wood and metal debris was observed in the potholes. Thirteen soil samples were collected and analyzed for metals, petroleum hydrocarbons, VOCs, SVOCs, and PCBs. Groundwater samples were not collected during potholing activities.

Four 4-inch monitoring well (MW-10.1 through 10.4) were installed in the Fill Material Area. Soil and groundwater samples were collected and analyzed for petroleum hydrocarbons.

#### ***SOIL***

Detectable concentrations of metals in the pothole soil samples from the Fill Material Area are representative of those found in the greater area. VOCs, PCBs, and TPH-G were not detected at or above the laboratory detection limits in soil samples from the Fill Material Area. The SVOC Phenanthrene was detected in soil sample P10-PH26, slightly above the laboratory detection limit. No other SVOCs were detected in soil samples collected from the Fill Material Area. TPH-D concentrations ranged from 3.2 mg/kg (P10-PH3 at 4.5 fbg) to 460 mg/kg (P10-PH13 at 9 fbg).

Concentrations of TPH-D ranged from 2.5 mg/kg (MW-10.4 at 10 fbg) to 160 mg/kg (MW-10.4 at 14 fbg) in soil samples collected during monitoring well installation activities. TPH-MO concentrations ranged from 39 mg/kg (MW10.2 at 5 fbg) to 360 mg/kg (MW-10.3 at 5 fbg).

#### *GROUNDWATER*

During measurements collected from January 2004 depth to water ranged from 7 to 26 fbg with a flow direction of southwest. TPH-D was not detected at or above the laboratory detection limit in the monitoring wells installed in the Fill Material Area.

#### 5.10.2 Clinker and Ash/Scrap Pile

##### *PHASE I RECOMMENDATIONS*

- Investigate the Clinker and Ash/Scrap Pile for metals, TPH as diesel and as motor oil, and PCBs. The investigation can be performed by trenching through the identified areas and collecting representative soil samples while logging visual findings.

##### *PHASE II ACTIVITIES AND RESULTS*

One pothole (P10-PH2) was excavated for the purpose of investigating suspected subsurface soils in the vicinity of the Clinker and Ash/Scrap Pile. The pothole was completed to a depth of 10.6 fbg. One soil sample was collected and analyzed for metals, petroleum hydrocarbons, VOCs, SVOCs, and PCBs. A grab groundwater sample was not collected during potholing activities.

#### *SOIL*

Detectable concentrations of metals in the pothole soil sample from the Clinker and Ash/Scrap Pile Area are representative of those found in the greater area. TPH-D, TPH-G, VOCs, SVOCs, PCBs, and TPH-G were not detected at or above the laboratory detection limits in soil sample from the Clinker and Ash/Scrap Pile Area.

#### 5.10.3 Discussion

##### *SOIL*

Soil samples collected in Parcel 10 were not impacted with metals, TPH-G, VOCs, SVOCs, and PCBs. Elevated levels of TPH-D and TPH-MO were detected in the Fill Material Area. Non-detectable concentrations of TPH-D and TPH-MO in groundwater samples collected from wells located in the Fill Material Area indicate groundwater impacts are not detected.

##### *GROUNDWATER*

Results of the January 2004 Groundwater Sampling event did not identify petroleum hydrocarbon impacts to groundwater in the Fill Material Area. Depth to water ranged from 7 to 26 fbg.

#### 5.10.4 Recommendations

Based on the information gathered during Phase II activities, TRC makes the following recommendations:

- No further action required in Clinker and Ash/Scrap Pile Area.
- Continue quarterly monitoring and sampling of existing wells for one year.



## 6.0 RECOMMENDATIONS

Based on the findings and results from the Phase II activities, TRC has the following recommendations (listed by parcels):

### Parcel 1

- No further action is required at Glass Beaches No. 1 and No. 2.
- Remove scrap metal visible along coastal bluffs at Glass Beach No. 3.

### Parcel 2

- No further action is required in the Breezeway, Dry Shed No. 2, and the Helicopter Landing Pad.
- Add VOCs analysis to groundwater sampling plan for next monitoring and sampling event.
- Excavate soil in vicinity of P2-3 (700 mg/kg) and P2-6 (1,800 mg/kg) to a minimum depth of 3 fbg due to TPH-D impacts.
- Continue quarterly monitoring and sampling of existing wells for one year.

### Parcel 3

- No further action at transformers, Scrap Yard, Planer No. 50, Former Planer No. 1, Dry Sheds No. 4 and 5, Construction Engineering, and at the Kilns.
- Further investigate soil along the Railroad Tracks at P3-12 due to TPH-D impacts at 0.5 fbg.
- Remove the catch basin and sump (including residual liquid) at the Former Mobil Equipment Shop and excavate adjacent soils.
- Remove concrete foundations of former buildings at the Former Mobil Equipment Shop and excavate soils at P3-35 (minimum 2 fbg) due to TPH-D impacts.
- Excavate soils in vicinity of P3-47 to minimum depth of 4 fbg due to TPH-D impacts.
- Once the building is demolished, excavate surface soils (minimum 1 fbg) to address TPH-D and TPH-MO impacts at the Machine Shop/Sheet Metal building.
- Further investigate soils at the Covered Shed (P3-54) to assess TPH-D and TPH-MO impacts.
- Continue quarterly groundwater monitoring and sampling of installed wells on Parcel 3 for one year.

### Parcel 4

- No further action at the transformers, Power House Fuel Storage, Cooling Towers, Press Building, or Oil Storage Shed.
- Investigate soils and anomalies in the Former Bunker Fuel AST area after power lines have been removed.
- Further assess soil and groundwater specifically at P4-17 due to soil staining and hydrocarbon odor observed.

- Assess soil and groundwater beneath the Power House once it has been demolished (this area was inaccessible during the Phase II investigation).
- Further investigate the source of the geophysical anomaly (approximately 8 feet by 13 feet) at the Power House.
- Collect sediment samples at Pond 7.
- Continue quarterly groundwater monitoring and sampling of installed wells on Parcel 4 for one year.

#### Parcel 5

- No further action required at the Transformer Pad, Washdown Building, Gas Station Area, and the Former Boarding House Area.
- Remove concrete and wood foundation in Sawmill No. 1 area and excavate impacted soils.
- Excavate and remove impacted soils in the area to the west of the Mobile Equipment Shop in the vicinity of P5-PH1 and P5-25 through P5-27.
- Excavate soils in vicinity of P5-22, P5-23, and P5-24.
- Further assess soil and groundwater southwest of the Tire Shop, west of the Fuel Storage and Dispenser Building, and the Log Pond Fill Material Area.
- Continue quarterly monitoring and sampling of existing monitoring wells for one year.

#### Parcel 6

- No further action at the transformers, Hazardous Waste Storage Area, Planer Mill No. 2, and Former Cooling Towers.
- Further shallow soil assessment for TPH-D at the Shipping Office and the former AST location (east of the Shipping Office).
- Install one monitoring well at the former AST location to assess TPH-D concentrations in groundwater.
- Install one monitoring well at the Fill Area at P6-PH8 to assess TPH-D and TPH-MO impacts to groundwater.
- Further investigate source of geophysical anomaly northwest of the Shipping Office.

#### Parcel 7

- No further action at the transformers, Hazardous Materials Storage Area, South Ponds, and Sediment Drying Area.
- Excavate soil at P7-3 (to 3 fbg minimum) and P7-4 and P7-5 (to 1 fbg minimum) outside Sawmill No. 2.
- Further soil assessment at the TP Burner & Fuels ASTs location at P7-10 for TPH-D (with SGCU).
- Remove the soil stockpile west of Sawmill No. 2 via offsite transportation and disposal (or complete onsite treatment).
- Abandon existing groundwater wells FB-1, FB-2, and FB-3 in the east area of Parcel 7.
- Continue quarterly groundwater monitoring and sampling of MW-7.1 for one year.

Parcel 8

- Collect a grab groundwater sample at P8-T2 and analyze for TPH-D with SGCU.

Parcel 9

- No further action required at the Overhead Transformer and Scrap Metal Area.
- Soil and groundwater from the Nursery Area should be further assessed for the presence of atrazine and tebuthiuron.

Parcel 10

- No further action required in Clinker and Ash/Scrap Pile Area.
- Continue quarterly monitoring and sampling of existing wells for one year.

## 7.0 REFERENCES

- Division of Mines and Geology, 1960 (Third Printing, 1992). Geologic Map of California, Ukiah Sheet, Scale 1:250,000.
- SHN Consulting Engineers and Geologists, Inc., 2002. Remedial Action Plan, Glass Beach Property, Fort Bragg, California, RWQCB Case No. INMC447. May.
- State of California, Department of Water Resources, 1982. Mendocino County Coastal Ground Water Study.
- TRC, 2004. Phase I Environmental Site Assessment. Georgia-Pacific California Woods Products Manufacturing Division, 90 West Redwood Avenue, Fort Bragg, California. March 2004.
- TRC, 1998. Report of Findings, Preliminary Investigation Demolition Support Services, Georgia-Pacific Fort Bragg Facility, Fort Bragg, California. April 1.
- Hygienetics Environmental Services, Inc., 2003. Asbestos and Lead Based Paint Inspection Report, Georgia Pacific Site, 90 West Redwood Avenue, Fort Bragg, California. February 2003.